The Ultimate AP Psych Exam Review!

The title slide for each chapter has links to Crash Course videos & Quizlets.

KEEP
CALM
AND
SCORE A
FIVE

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SHOUT
SHARE
IT

Table of Contents (click the link for the chapter you want to access)

Chapter 1: Approaches

Chapter 2: Research Methods

Chapter 3: Biological Bases of Behavior

Chapter 4: Sensation & Perception

Chapter 5: States of Consciousness

Chapter 6: Learning

Chapter 7: Memory, Language & Cognition

Chapter 8: Emotion, Motivation, Stress

Chapter 9: Developmental Psychology

Chapter 10: Personality

Chapter 11: Testing & Individual Differences

Chapter 12 & 13: Abnormal Psychology

Chapter 14: Social Psychology

Chapter 1: Approaches

Crash Course - Intro to Psychology

Quizlet

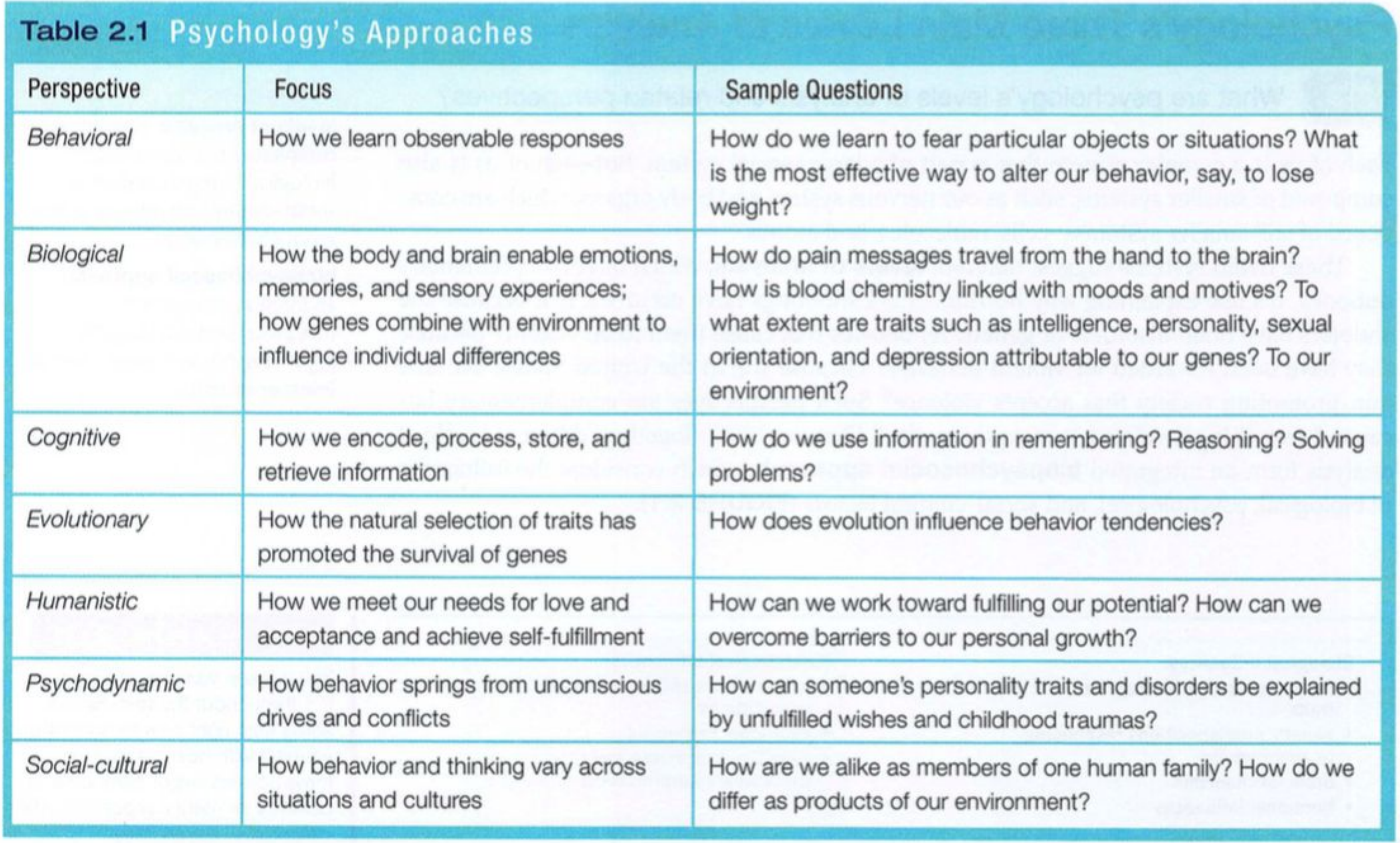


Table 2.1 Psychology's Approaches

Perspective	Focus	Sample Questions
Behavioral	How we learn observable responses	How do we learn to fear particular objects or situations? What is the most effective way to alter our behavior, say, to lose weight?
Biological	How the body and brain enable emotions, memories, and sensory experiences; how genes combine with environment to influence individual differences	How do pain messages travel from the hand to the brain? How is blood chemistry linked with moods and motives? To what extent are traits such as intelligence, personality, sexual orientation, and depression attributable to our genes? To our environment?
Cognitive	How we encode, process, store, and retrieve information	How do we use information in remembering? Reasoning? Solving problems?
Evolutionary	How the natural selection of traits has promoted the survival of genes	How does evolution influence behavior tendencies?
Humanistic	How we meet our needs for love and acceptance and achieve self-fulfillment	How can we work toward fulfilling our potential? How can we overcome barriers to our personal growth?
Psychodynamic	How behavior springs from unconscious drives and conflicts	How can someone's personality traits and disorders be explained by unfulfilled wishes and childhood traumas?
Social-cultural	How behavior and thinking vary across situations and cultures	How are we alike as members of one human family? How do we differ as products of our environment?

Chapter 2: Research Methods

Crash Course - Psychological Research

Quizlet

Variables

Independent variable – what we manipulate in the test; all other experimental conditions are controlled

Dependent Variable – outcome; is dependent upon manipulation of the IV

Writing Operational Definitions

Operational definition – a statement that describes how a particular variable is to be measured, or how an object or condition is to be recognized

- “operation” – procedure for experiment

- *Tells what a researcher should DO or what they should OBSERVE*

- ***critical for replication*

Random sample v. random assignment

Random sampling allows us to obtain a sample representative of the population

- So that *results of the study can be generalized to the population*

Random assignment to control or experimental group allows us to make sure that the only difference between the various treatment groups is our manipulation of the IV

- *causation can be inferred*

Sonic Commercial

Types of Psychological Research

In *experiments,* the researcher controls all the conditions and directly manipulates the conditions; ONLY AN EXPERIMENT CAN DETERMINE CAUSATION!!

Quasi-experiments – *no random assignment*, often pre/post test formats; pretest – treatment – post test

Non-experimental methods include:

- Correlational studies
- Surveys
- Naturalistic observation
- Longitudinal studies
- Cross-sectional studies
- Cohort-sequential studies

Guess the Correlation Game

Correlational Study

Shows relationship between 2 variables

** correlation DOES NOT mean causation!

Correlation coefficient = degree of relationship between 2 variables

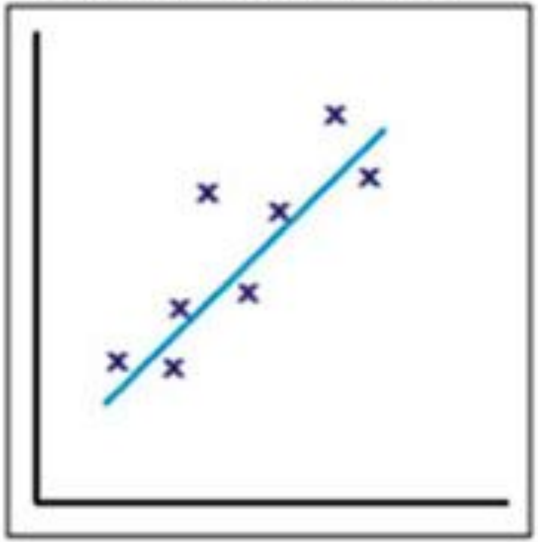
r = -1.0 ----------- 0 ------------ +1.0

Strong negative – ie. More study time is associated with less anxiety

No correlation Ie. Shoe size/GPA

Strong positive – ie. SAT scores/college grades

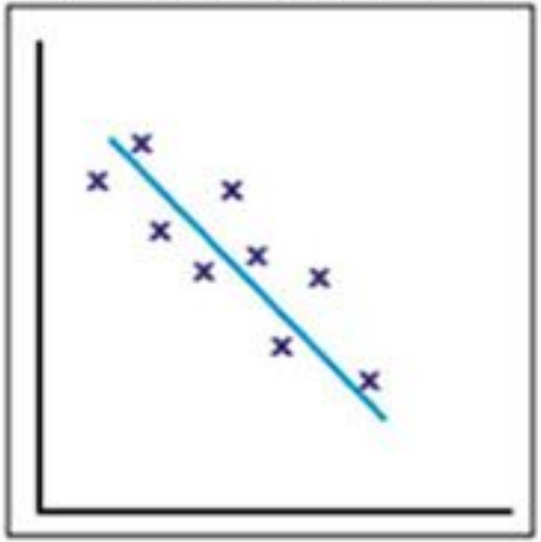
Positive correlation



The points lie close to a straight line, which has a positive gradient.

This shows that as one variable **increases** the other **increases**.

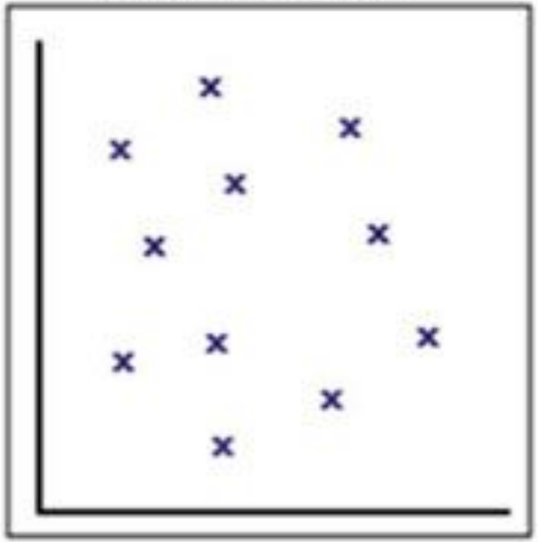
Negative correlation



The points lie close to a straight line, which has a negative gradient.

This shows that as one variable **increases**, the other **decreases**.

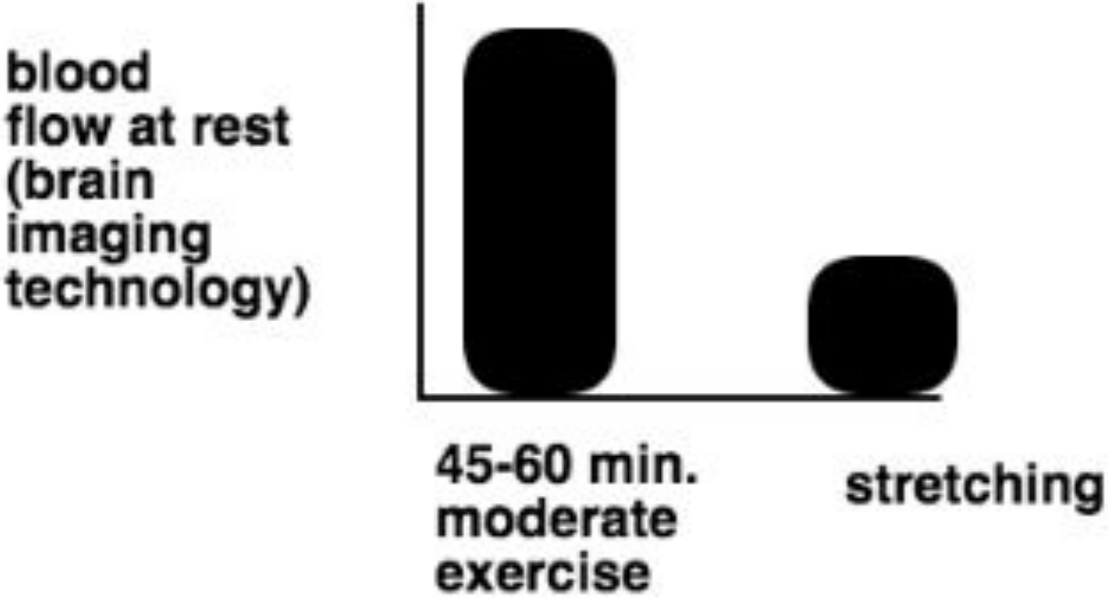
No correlation



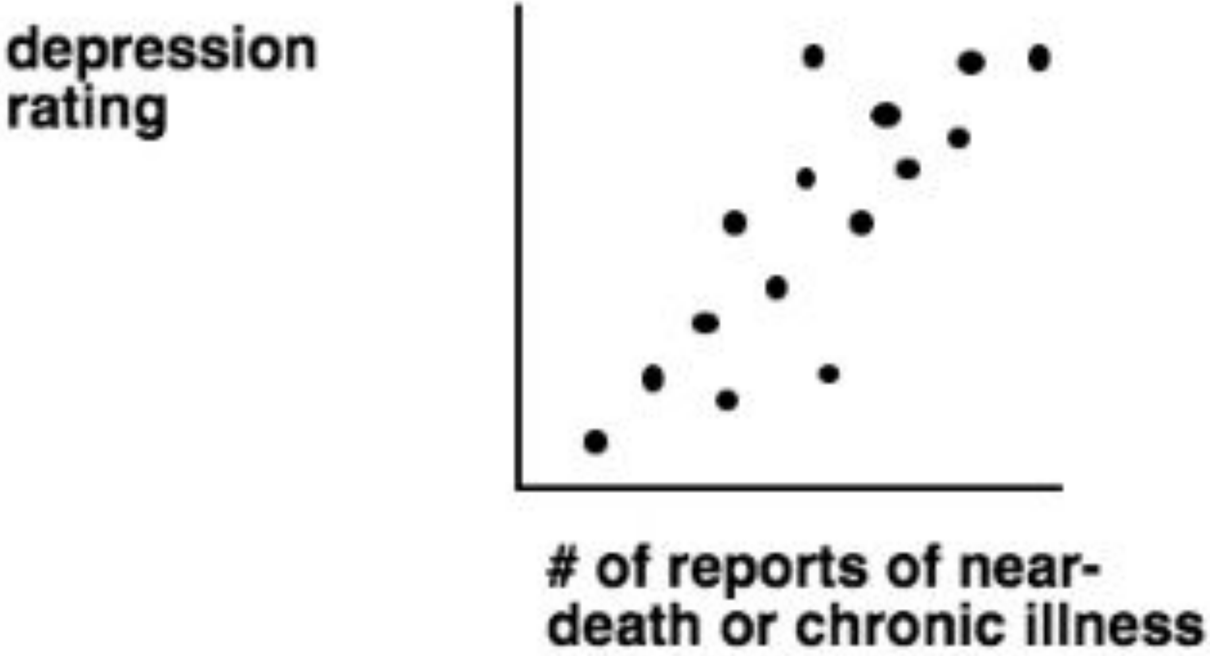
There is no pattern to the points.

This shows that there is **no connection** between the two variables.

Representation of experimental data



Representation of correlational data



Controlling for Bias

Bias could affect the way an experimenter designs a study, collects data, or interprets results, so they set controls

- Single blind – participants do not know which treatment they receive
- Double blind studies – participants AND researchers do not know which group they are in/treatment they receive (*popular in testing effectiveness of drugs*)
- Researchers must also attempt to control confounding variables

Ethics in Research - “Do No Harm”

- Institutional Review Boards (IRBs) approve research at all institutions; separate board for humane animal research
- Informed Consent - participants must be informed of purpose of study, potential risks, etc. prior to study
- Right to refuse participation/withdraw from study
- Deception – sometimes acceptable (but avoid); participants must be debriefed to ensure no long term negative consequences
- Confidentiality of results
- Responsibility to repair damage

APA Guidelines for Animal Research

Animal research - humane treatment (minimize pain and discomfort, proper anesthesia, etc.)

**will the gains of the research outweigh their discomfort?

Questions Raised about Mental Health Studies on Baby Monkeys

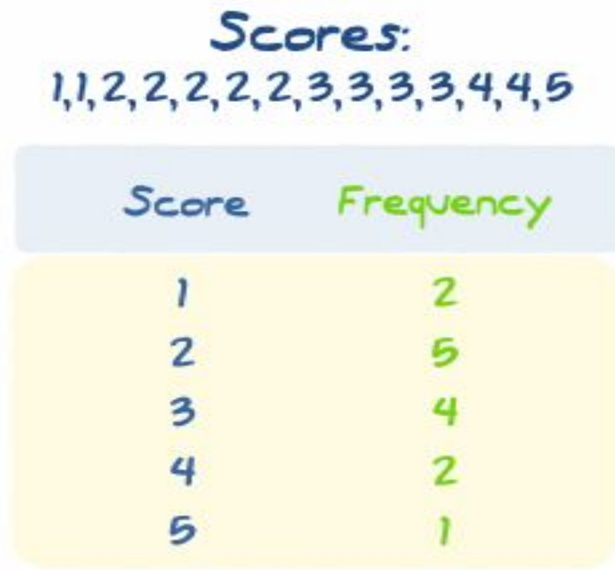
How Do We Make Sense of the Data?

CORE CONCEPT

Researchers use statistics for two major purposes:
(1) descriptively to characterize measurements made on groups or individuals and
(2) inferentially to judge whether these measurements are the result of chance

Organizing the Data

- Results arranged in a summary chart - *frequency distribution*
- We can convert the data into a *histogram*

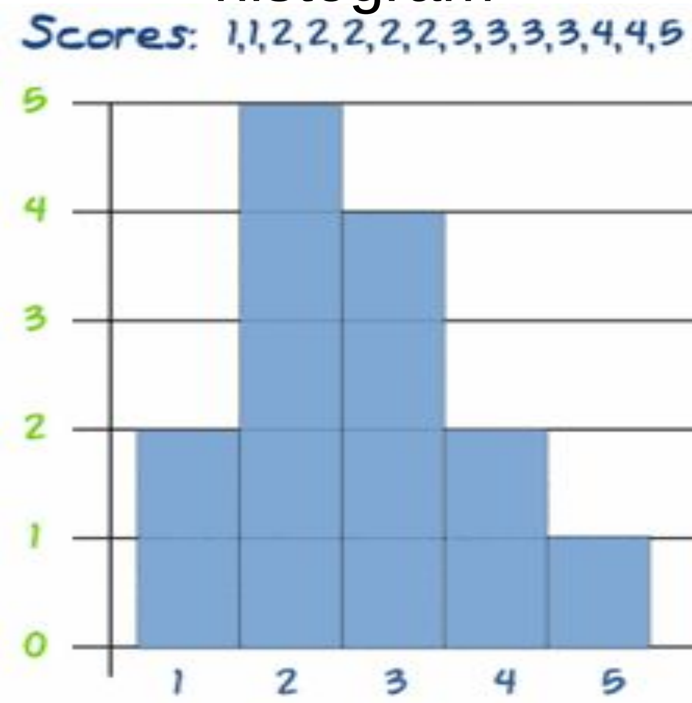


Scores:
1,1,2,2,2,2,2,3,3,3,3,4,4,5

Score	Frequency
1	2
2	5
3	4
4	2
5	1

Frequency distribution

histogram



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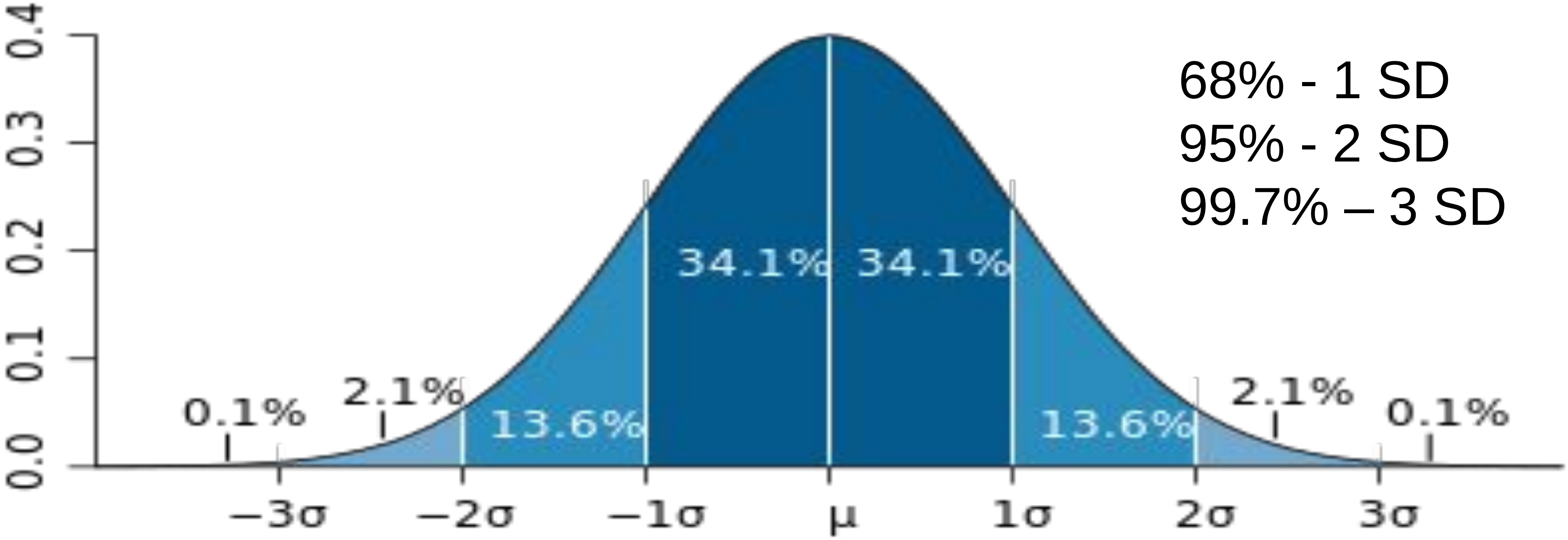
Descriptive Statistics

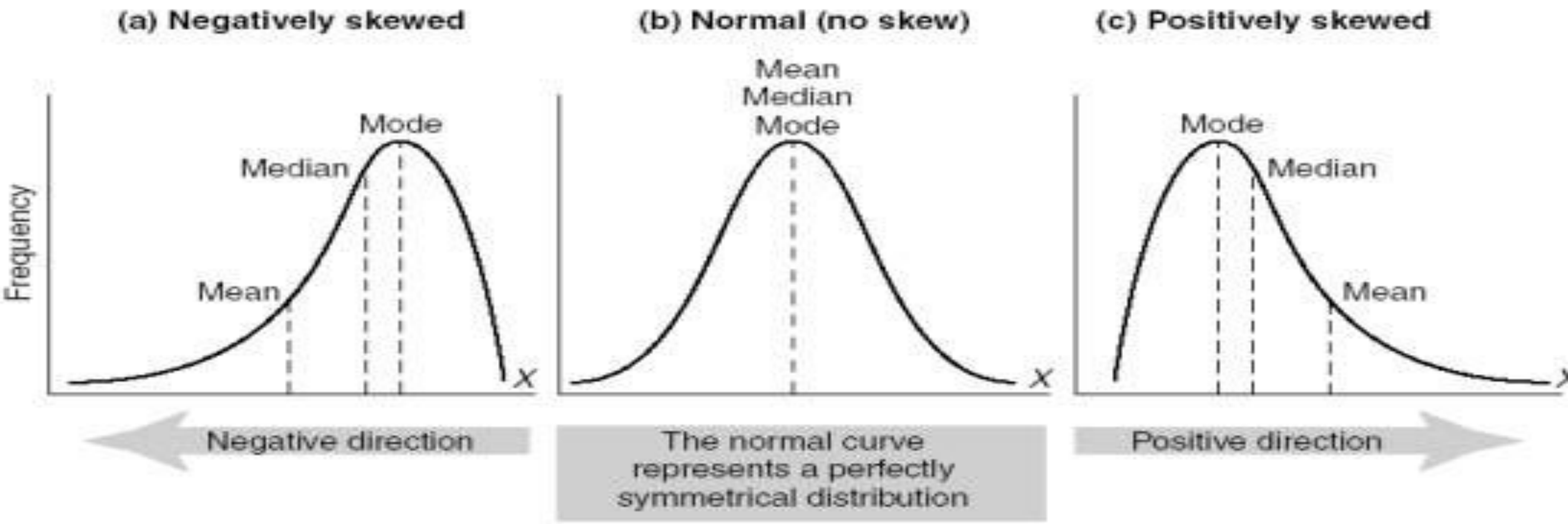
- Can only describe the data for the sample we have
- Measure of central tendency:
  - The mean
  - The median
  - The mode
- Measures of variability:
  - The range
  - The standard deviation – most widely used; takes all scores into account; average distance of each score from the mean

The Bell Curve - A Normal Distribution



68% - 1 SD
95% - 2 SD
99.7% – 3 SD

In a normal distribution, what % of scores fall within one standard deviation of the mean?


(a) Negatively skewed

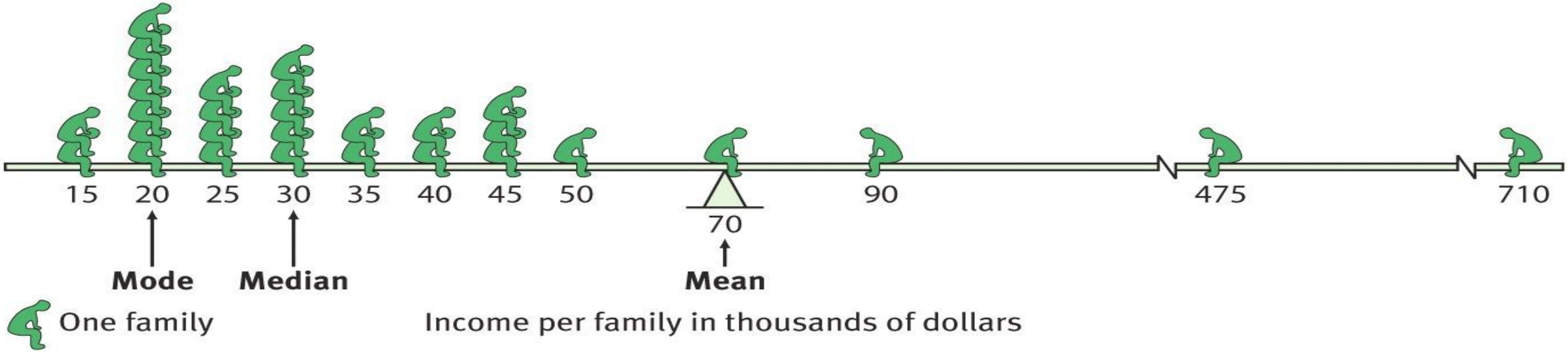
(b) Normal (no skew)

(c) Positively skewed

Frequency
Mode
Median
Mean
X
Negative direction
Mean
Median
Mode
X
The normal curve represents a perfectly symmetrical distribution
Mode
Median
Mean
Positive direction

FIGURE 15.6 Examples of normal and skewed distributions

But the **mean** doesn't work in a skewed distribution



The Median is a better measure of central tendency!

Statistical significance

p<.05 (less than 5% probability that the *difference between the control and experimental groups* is due to chance – the difference is STATISTICALLY SIGNIFICANT)

*****the smaller the p value the greater the evidence against the null hypothesis***

If your results are statistically significant ***you reject the null hypothesis.***

Chapter 3: Biological Bases of Behavior

[Crash Course - Chemical Mind](#)

[Crash Course - Getting to Know Your Brain](#)

[Quizlet](#)

How Natural Selection Works

Environmental pressure
(changes in the environment)

Competition
(for resources)

Selection of fittest phenotype
(from among a variety of phenotypes)

Reproductive success
(genotype corresponding to fittest phenotypes passed to next generation)

Frequency of that genotype increases
(in next generation)

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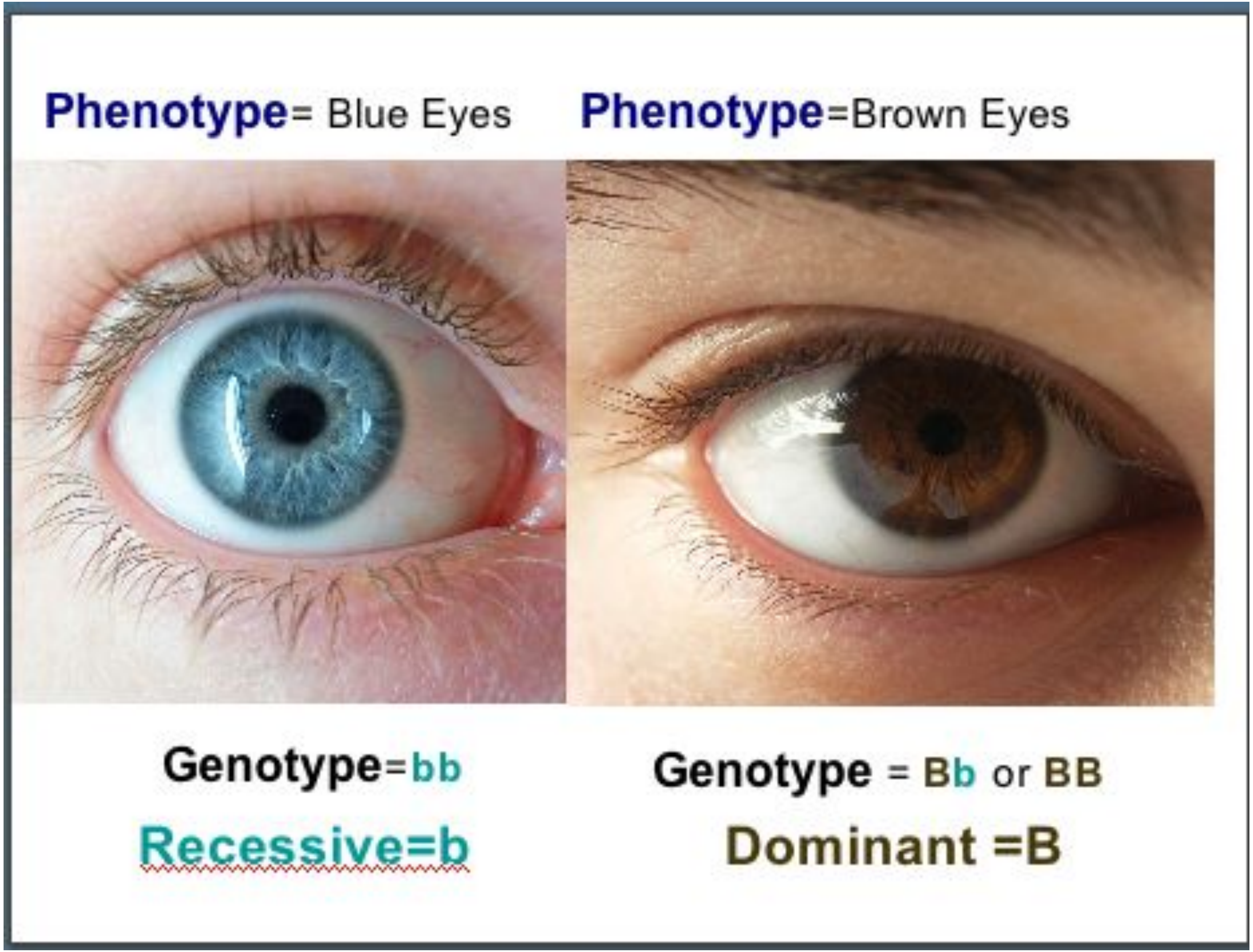
genotype - genes in our DNA that are responsible for a particular trait.

phenotype - physical expression, or characteristics, of that trait.


Phenotype= Blue Eyes
Phenotype=Brown Eyes
Genotype=bb
Recessive=b
Genotype = Bb or BB
Dominant =B

Kim

		D	d
Dan	d	Dd	dd
	d	Dd	dd

50% chance the baby will have the genotype ‘Dd’ and have dimples

50% chance the baby will have the genotype ‘dd’ and not have dimples

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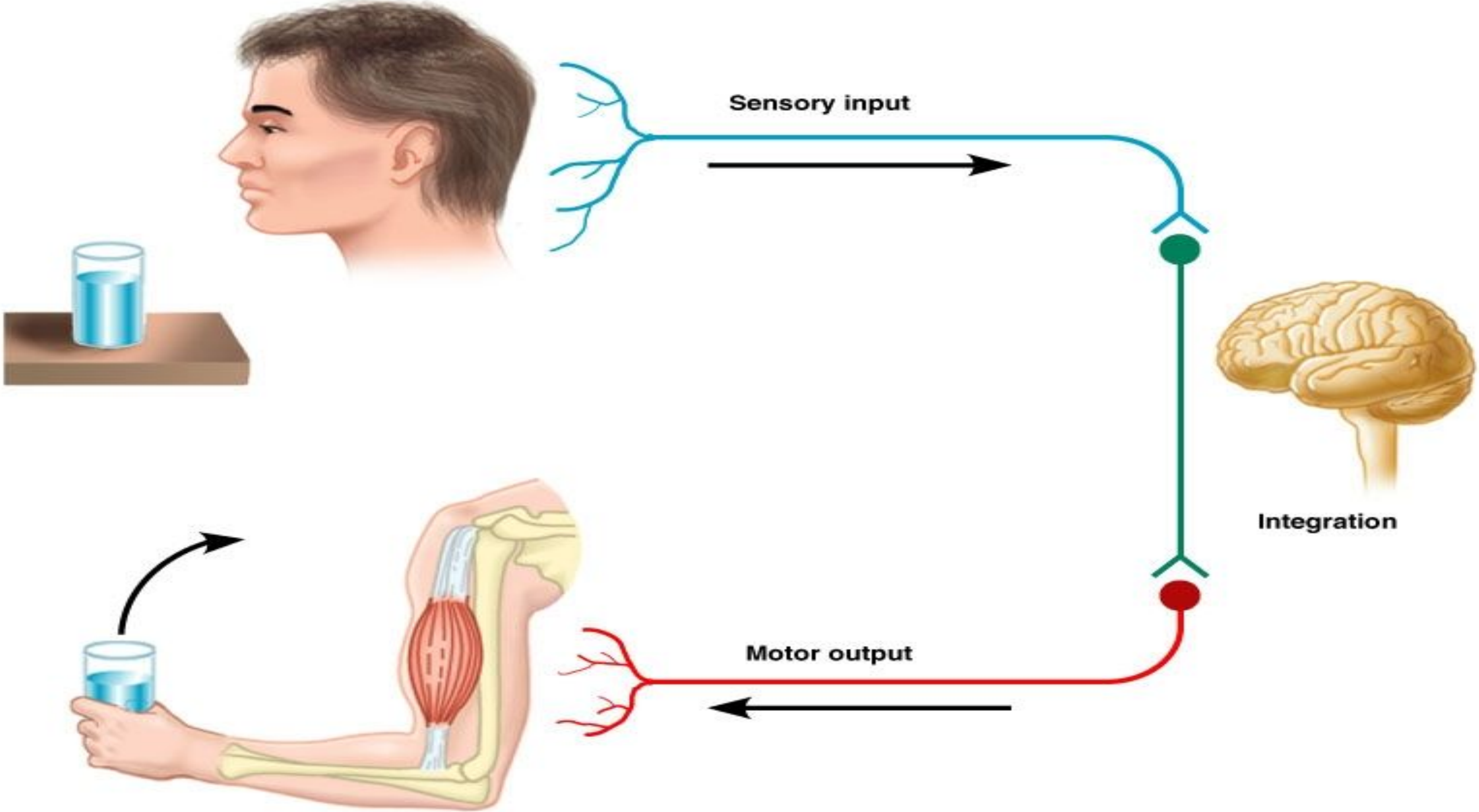
Types of Neurons (S.A.M.E.)

- Sensory (afferent) neurons – carry messages from sense receptors towards the CNS
- Motor (efferent) neurons – carry messages from CNS towards muscles and glands
- Interneurons – carry messages between nerve cells


Sensory input
Integration
Motor output

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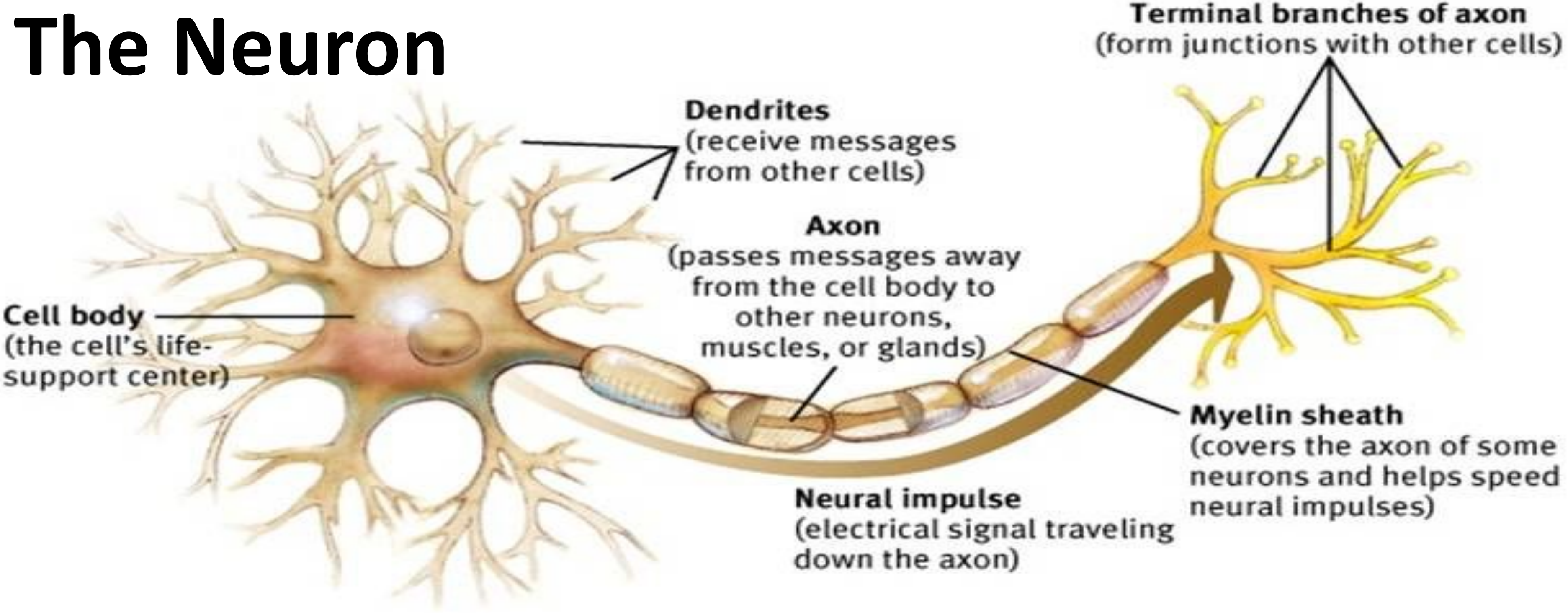
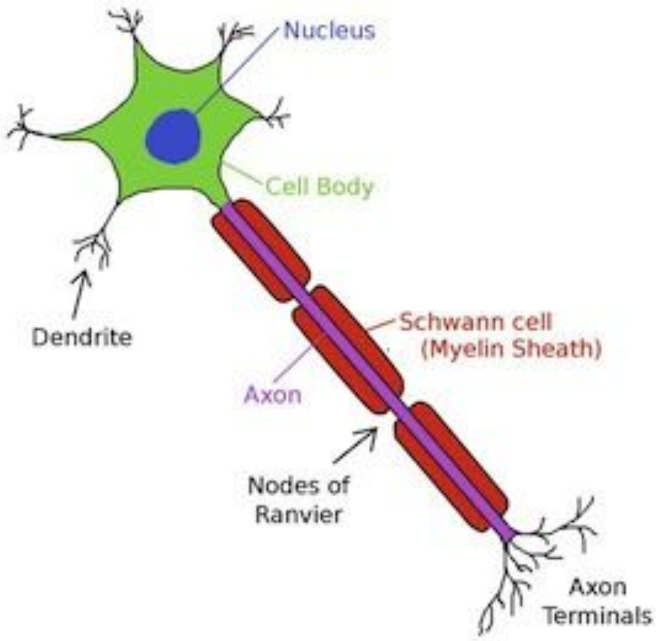
The Neuron


Terminal branches of axon
(form junctions with other cells)
Dendrites
(receive messages from other cells)
Axon
(passes messages away from the cell body to other neurons, muscles, or glands)
Cell body
(the cell's life-support center)
Myelin sheath
(covers the axon of some neurons and helps speed neural impulses)
Neural impulse
(electrical signal traveling down the axon)

Neurons do NOT touch each other – the space in between is called the synapse

Glial cells – provide structural support to neurons; help in forming new synapses


Nucleus
Cell Body
Dendrite
Schwann cell
(Myelin Sheath)
Axon
Nodes of
Ranvier
Axon
Terminals

Nodes of Ranvier are microscopic gaps found within myelinated axons. Their function is to speed up Action potentials along the axon via saltatory conduction.

action potential is generated only at the nodes as opposed to at every point along the axon

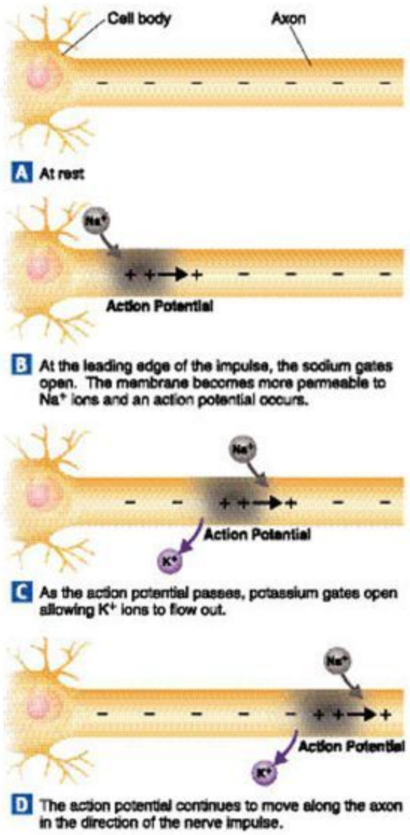
When a neuron fires, the electrical impulse is called an ACTION POTENTIAL!

- Soma (cell body) receives messages from presynaptic neuron
- Excitatory response – signals must exceed a minimum intensity, or threshold for an action potential to FIRE!!!
- Inhibitory response – neuron doesn’t fire
- **ALL or NONE Principle – the neuron either fires or it doesn’t!

How a Neuron Fires Video

STEPS from our in class sorting game

How a Neuron Fires



A At rest

B At the leading edge of the impulse, the sodium gates open. The membrane becomes more permeable to Na⁺ ions and an action potential occurs.

C As the action potential passes, potassium gates open allowing K⁺ ions to flow out.

D The action potential continues to move along the axon in the direction of the nerve impulse.

The electrical impulse is called the action potential

Step 1 - Resting potential

- Polarized - positive outside, negative inside
  (Na+) (Cl- & K+)
- Selectively permeable - gates do not allow sodium ions to pass through the cell membrane

Step 2 - Action potential – brief electrical charge that travels don the neuron

- Transmits neural messages to other neurons, muscles or glands
- When stimulated - depolarizes
  - Sodium (Na+) rushes in

Step 3 - Repolarization

- Potassium (Ka+) flows out repolarizing the Axon.

Step 4 - Return to Resting Potential

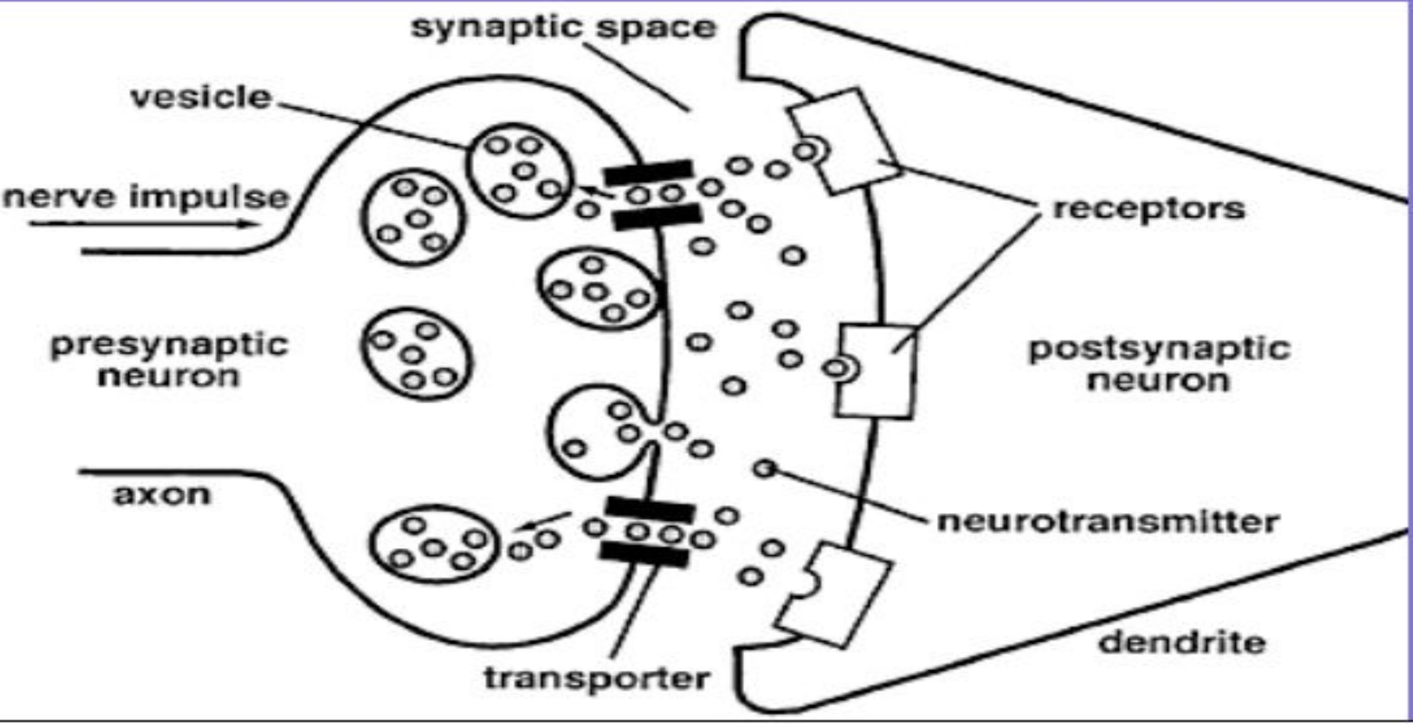
- Sodium/Potassium pumps push Sodium (Na+) out and Potassium in (Ka+) bringing axon back to a resting state

Step 5 - Refactory period

Brief period of time when neuron won't fire no matter how much stimulation

"Synaptic Transmission": How Neurons Communicate

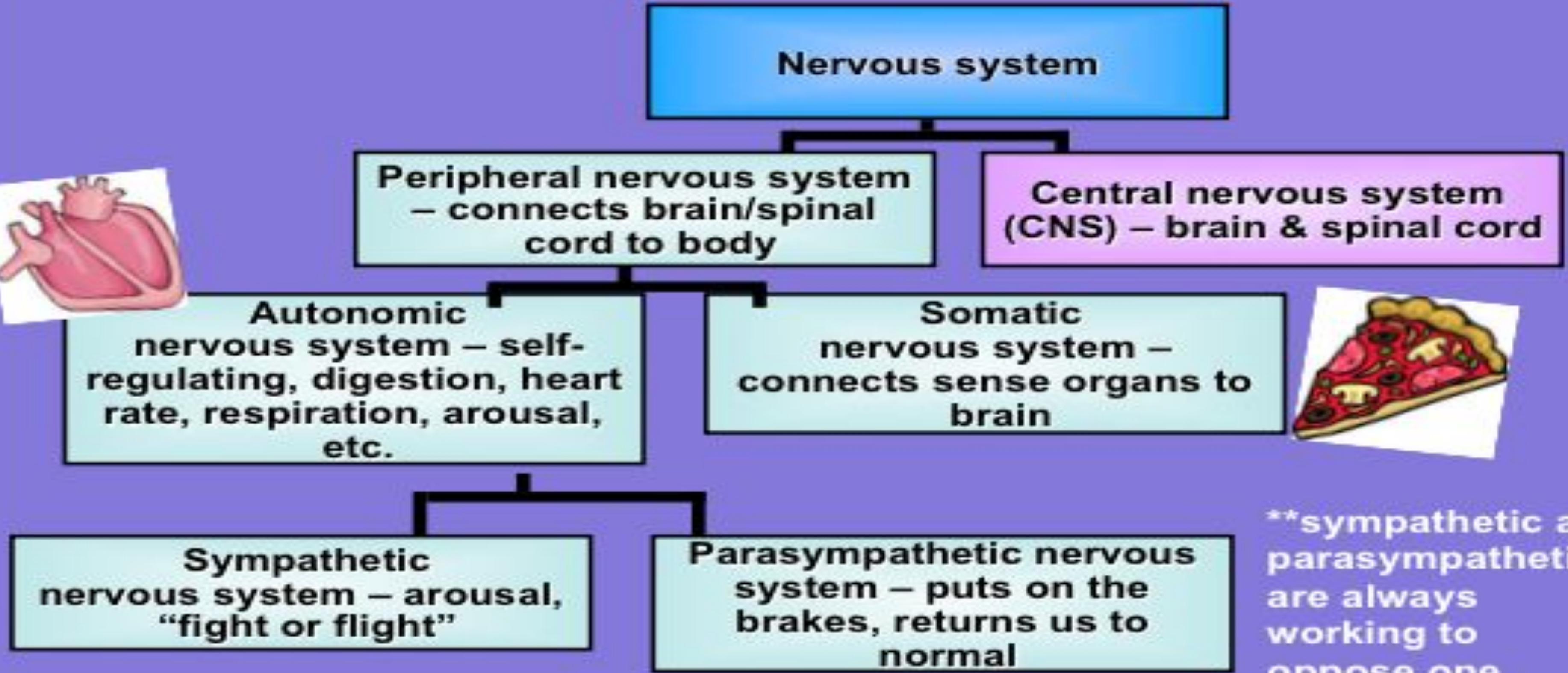
When neurotransmitters are released from the vesicles on the axon terminal buttons, the process switches from electrical to chemical


synaptic space
vesicle
nerve impulse
presynaptic neuron
axon
transporter
receptors
postsynaptic neuron
neurotransmitter
dendrite

Neurotransmitters Video

Neurotransmitter	Function	Effect of Deficit	Effect of Surplus	Excitatory or Inhibitory/ Additional Notes
Acetylcholine (Ach)	**Stimulates muscle contraction (skeletal and smooth); involved in attention, memory, learning and general intellectual functioning**	**Alzheimer's Disease** Lack of muscle movement & control (paralysis)	**Severe muscle spasms**	Additional notes: Explain botulin and curare's impact: **Both paralyze its victims by blocking ACh receptors involved in muscle movement**
Dopamine	**Pleasurable sensations involved in voluntary movement, attention, and learning** Stimulates hypothalamus (reward center)	**Parkinson's Disease** Anxiety disorders, memory problems, ADHD	Schizophrenia Drug Addiction	**Excitatory and Inhibitory**
Serotonin	**Moods and emotional states, hunger regulation of sleep and wakefulness (arousal)**	**Depression, mood disorders**	**Autism** Mania	**Inhibitory**
Norepinephrine	**Used for arousal in the flight/fight response, modulation of mood, plays a role in learning and memory retrieval**	**Mental disorders, especially depression**	Anxiety	Excitatory
GABA	**Helps to offset excitatory messages and regulate daily sleep-wake cycles** Brain's major inhibitory neurotransmitter	**Anxiety, seizures, tremors, and insomnia**	Sleep and eating disorders	**Inhibitory**
Endorphins	**Involved in pain perception and positive emotions** **Similar to opiate family of drugs** Pleasure, reduction of stress	**Body experiences pain**	**Body may not give adequate warning about pain. Artificial highs**	**Inhibitory**
Glutamate	**Used in memory, learning, movement. Helps messages cross the synapse more efficiently**		**Too much glutamate (and too little GABA) associated with epileptic seizures**	**Excitatory**

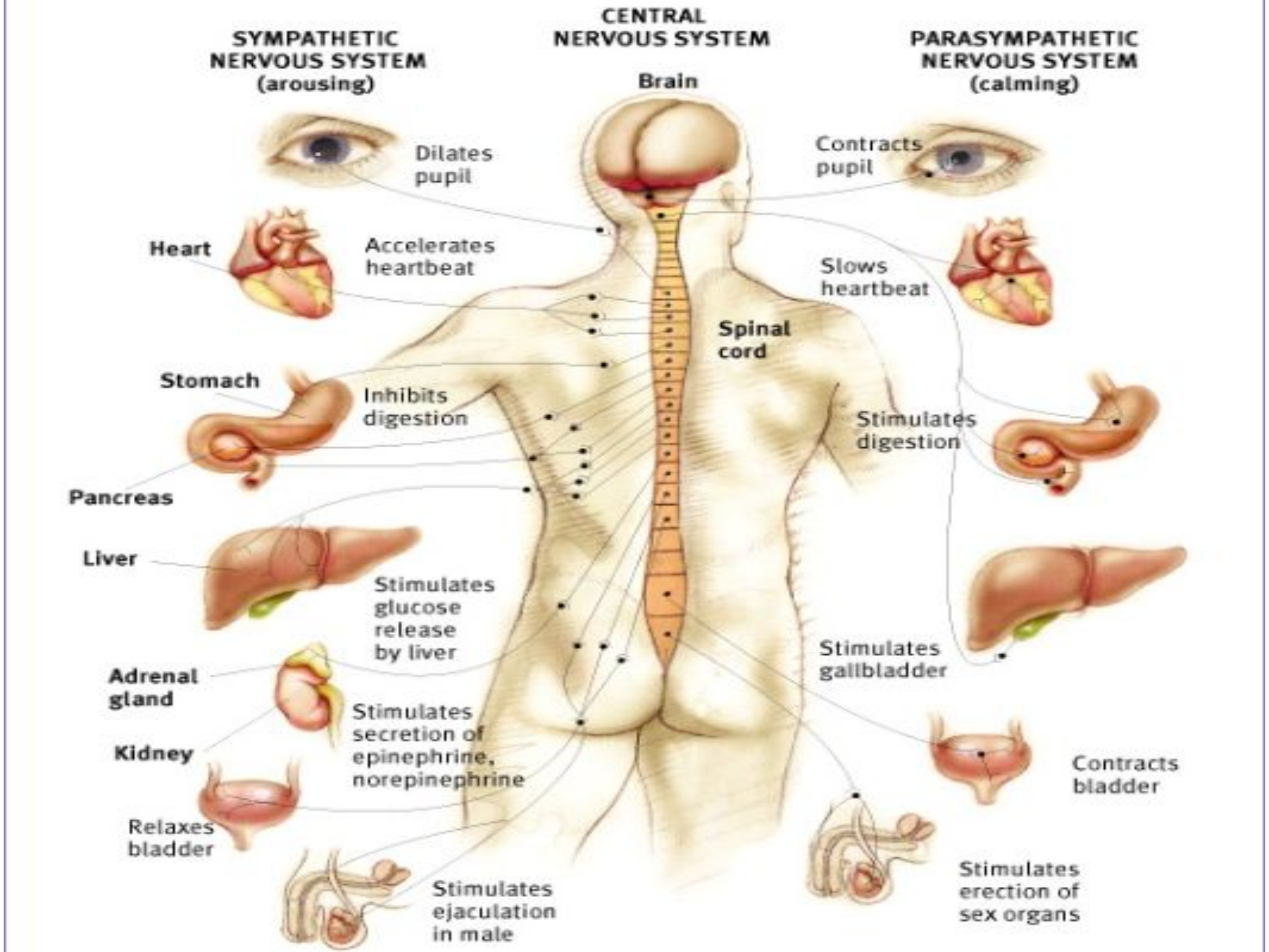
The Organization of the Nervous System

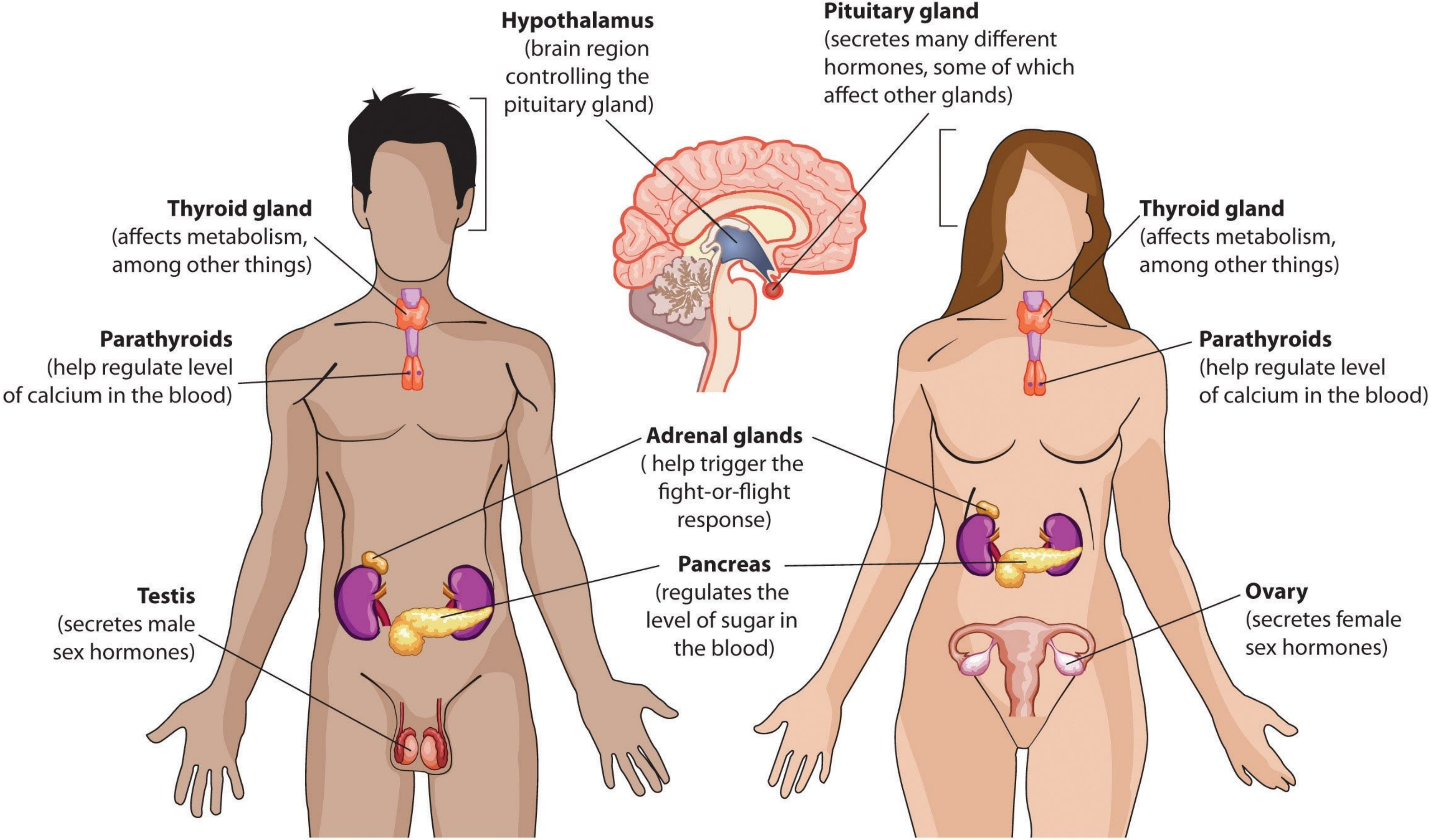


Nervous system

- **Peripheral nervous system – connects brain/spinal cord to body**
  - **Autonomic nervous system – self-regulating, digestion, heart rate, respiration, arousal, etc.**
    - **Sympathetic nervous system – arousal, "fight or flight"**
    - **Parasympathetic nervous system – puts on the brakes, returns us to normal**
  - **Somatic nervous system – connects sense organs to brain**
- **Central nervous system (CNS) – brain & spinal cord**

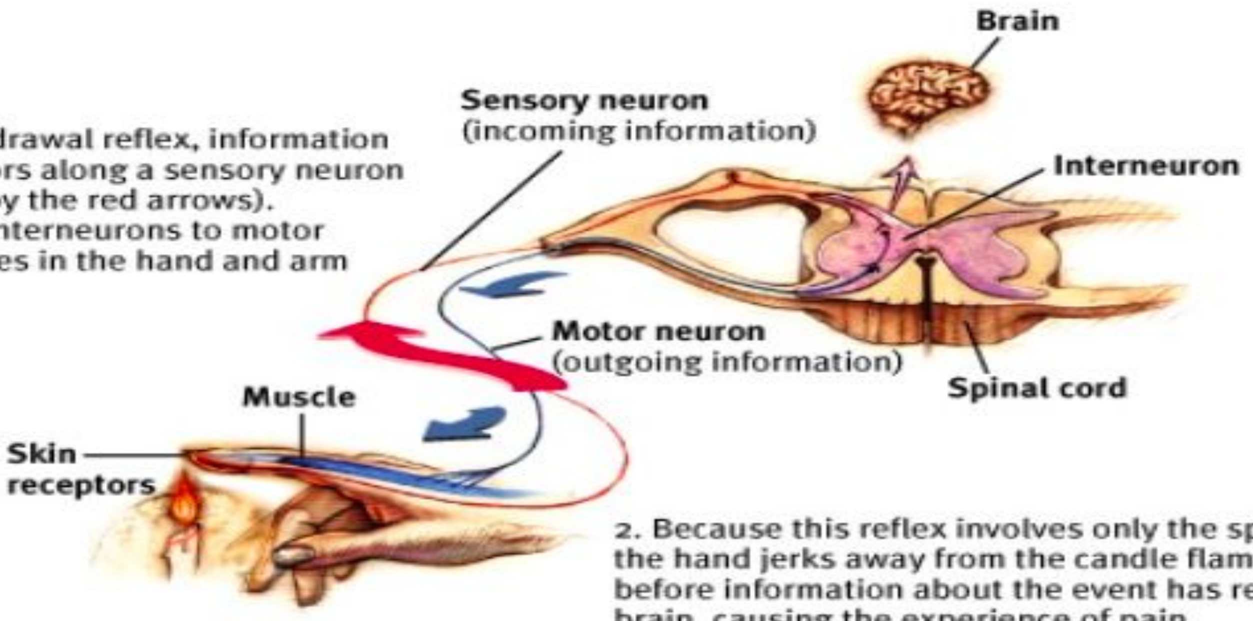
****sympathetic and parasympathetic are always working to oppose one**


SYMPATHETIC NERVOUS SYSTEM (arousing)
CENTRAL NERVOUS SYSTEM
PARASYMPATHETIC NERVOUS SYSTEM (calming)
Brain
Dilates pupil
Contracts pupil
Heart
Accelerates heartbeat
Slows heartbeat
Spinal cord
Stomach
Inhibits digestion
Stimulates digestion
Pancreas
Liver
Stimulates glucose release by liver
Stimulates gallbladder
Adrenal gland
Kidney
Stimulates secretion of epinephrine, norepinephrine
Contracts bladder
Relaxes bladder
Stimulates ejaculation in male
Stimulates erection of sex organs


Hypothalamus
(brain region controlling the pituitary gland)
Pituitary gland
(secretes many different hormones, some of which affect other glands)
Thyroid gland
(affects metabolism, among other things)
Parathyroids
(help regulate level of calcium in the blood)
Adrenal glands
(help trigger the fight-or-flight response)
Pancreas
(regulates the level of sugar in the blood)
Testis
(secretes male sex hormones)
Thyroid gland
(affects metabolism, among other things)
Parathyroids
(help regulate level of calcium in the blood)
Ovary
(secretes female sex hormones)

A Simple Reflex

1. In this simple hand-withdrawal reflex, information is carried from skin receptors along a sensory neuron to the spinal cord (shown by the red arrows). From here it is passed via interneurons to motor neurons that lead to muscles in the hand and arm (blue arrows).


Brain
Sensory neuron
(incoming information)
Interneuron
Motor neuron
(outgoing information)
Spinal cord
Muscle
Skin
receptors

2. Because this reflex involves only the spinal cord, the hand jerks away from the candle flame even before information about the event has reached the brain, causing the experience of pain.

** simple reflexes only involve the spinal cord – movement happens before info can reach the brain

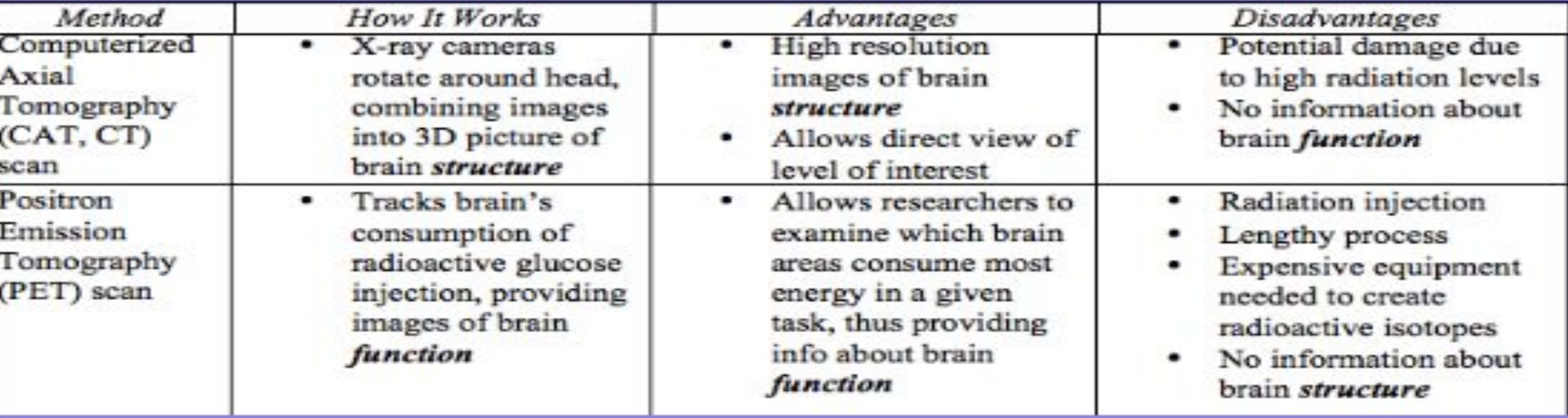
Your Brain on Drugs

- Agonists - Drug or other chemical that enhances or mimics the effects of neurotransmitters.
- Antagonists - Drug or other chemical that blocks/inhibits the effects of neurotransmitters.

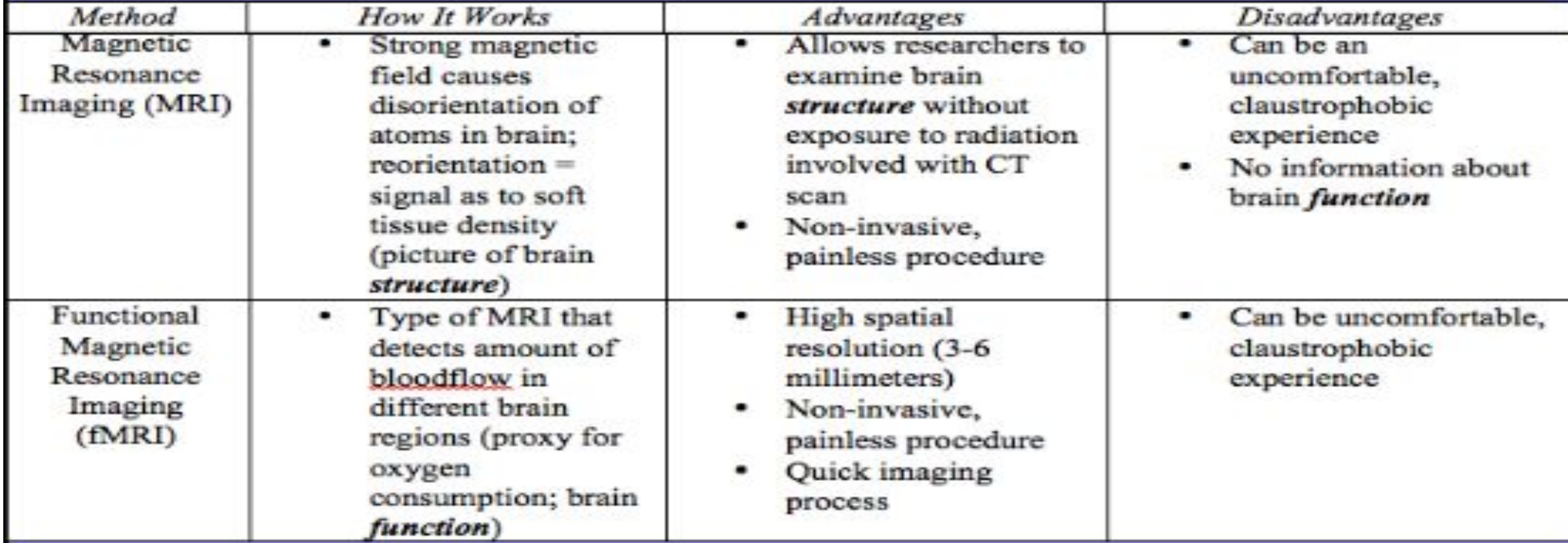
Memorizing Parts of the Brain Part I

Memorizing Part of the Brain Part II

Brain scans – Recordings of the brain's electrical or biochemical activity at specific sites



Method	*How It Works*	*Advantages*	*Disadvantages*
Computerized Axial Tomography (CAT, CT) scan	• X-ray cameras rotate around head, combining images into 3D picture of brain ***structure***	• High resolution images of brain ***structure*** • Allows direct view of level of interest	• Potential damage due to high radiation levels • No information about brain ***function***
Positron Emission Tomography (PET) scan	• Tracks brain's consumption of radioactive glucose injection, providing images of brain ***function***	• Allows researchers to examine which brain areas consume most energy in a given task, thus providing info about brain ***function***	• Radiation injection • Lengthy process • Expensive equipment needed to create radioactive isotopes • No information about brain ***structure***

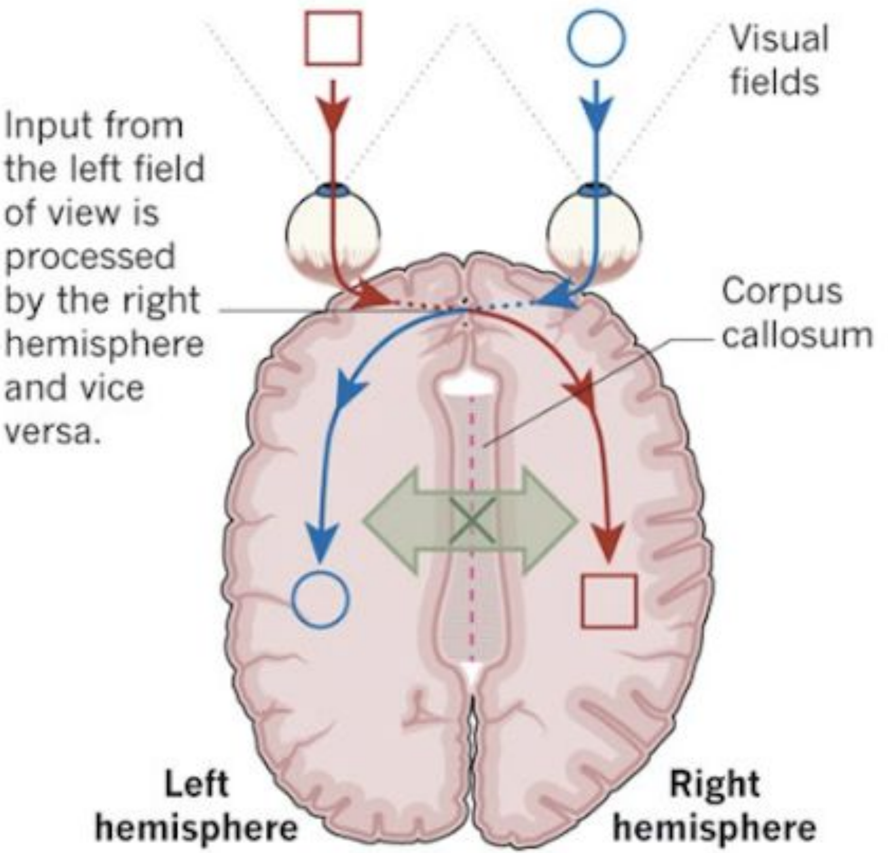


Method	*How It Works*	*Advantages*	*Disadvantages*
Magnetic Resonance Imaging (MRI)	• Strong magnetic field causes disorientation of atoms in brain; reorientation = signal as to soft tissue density (picture of brain ***structure***)	• Allows researchers to examine brain ***structure*** without exposure to radiation involved with CT scan • Non-invasive, painless procedure	• Can be an uncomfortable, claustrophobic experience • No information about brain ***function***
Functional Magnetic Resonance Imaging (fMRI)	• Type of MRI that detects amount of bloodflow in different brain regions (proxy for oxygen consumption; brain ***function***)	• High spatial resolution (3-6 millimeters) • Non-invasive, painless procedure • Quick imaging process	• Can be uncomfortable, claustrophobic experience

MRI = best picture of brain structure

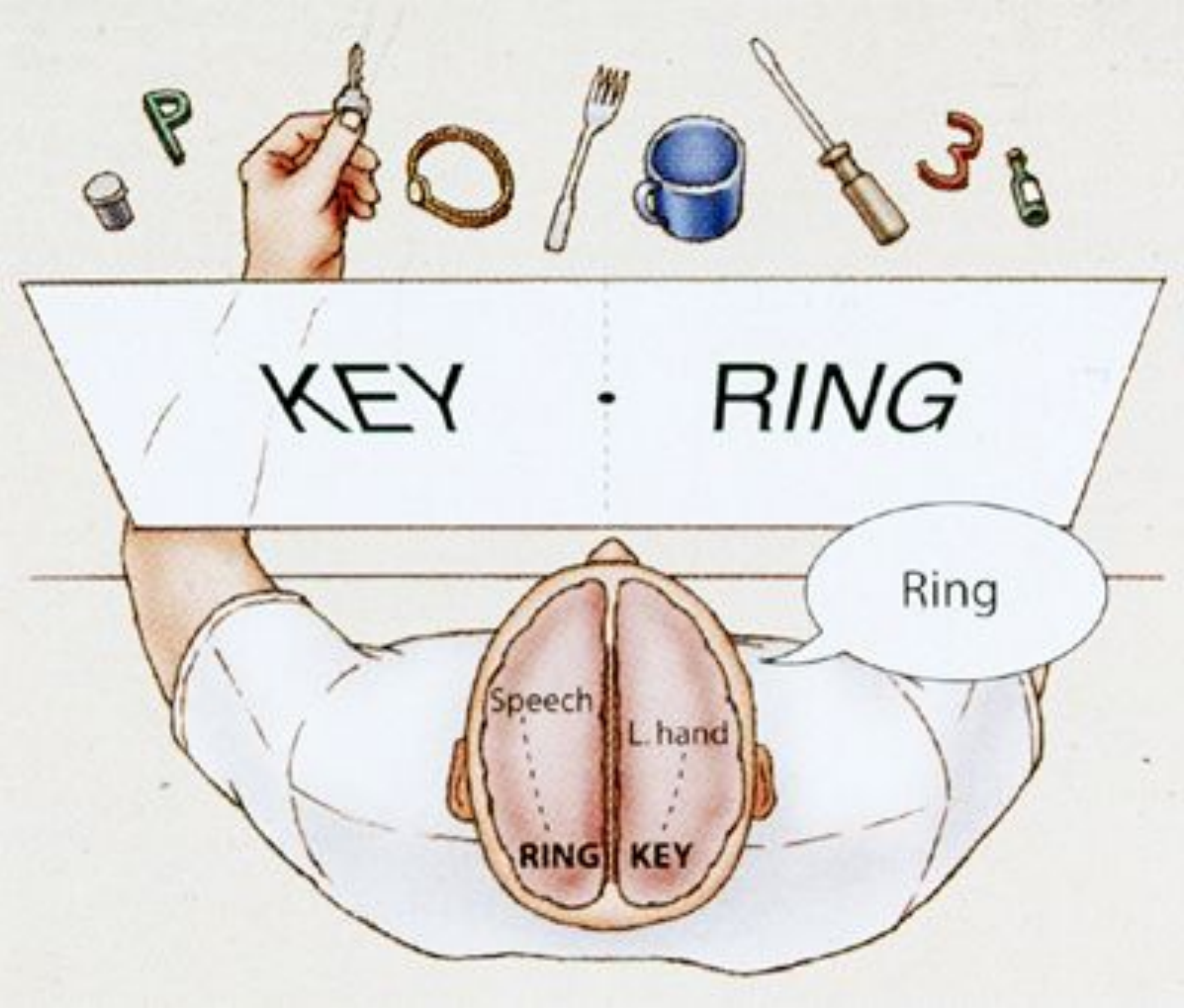
Split Brain Patients

Split-brain patients have undergone surgery to cut the corpus callosum, the main bundle of neuronal fibres connecting the two sides of the brain.

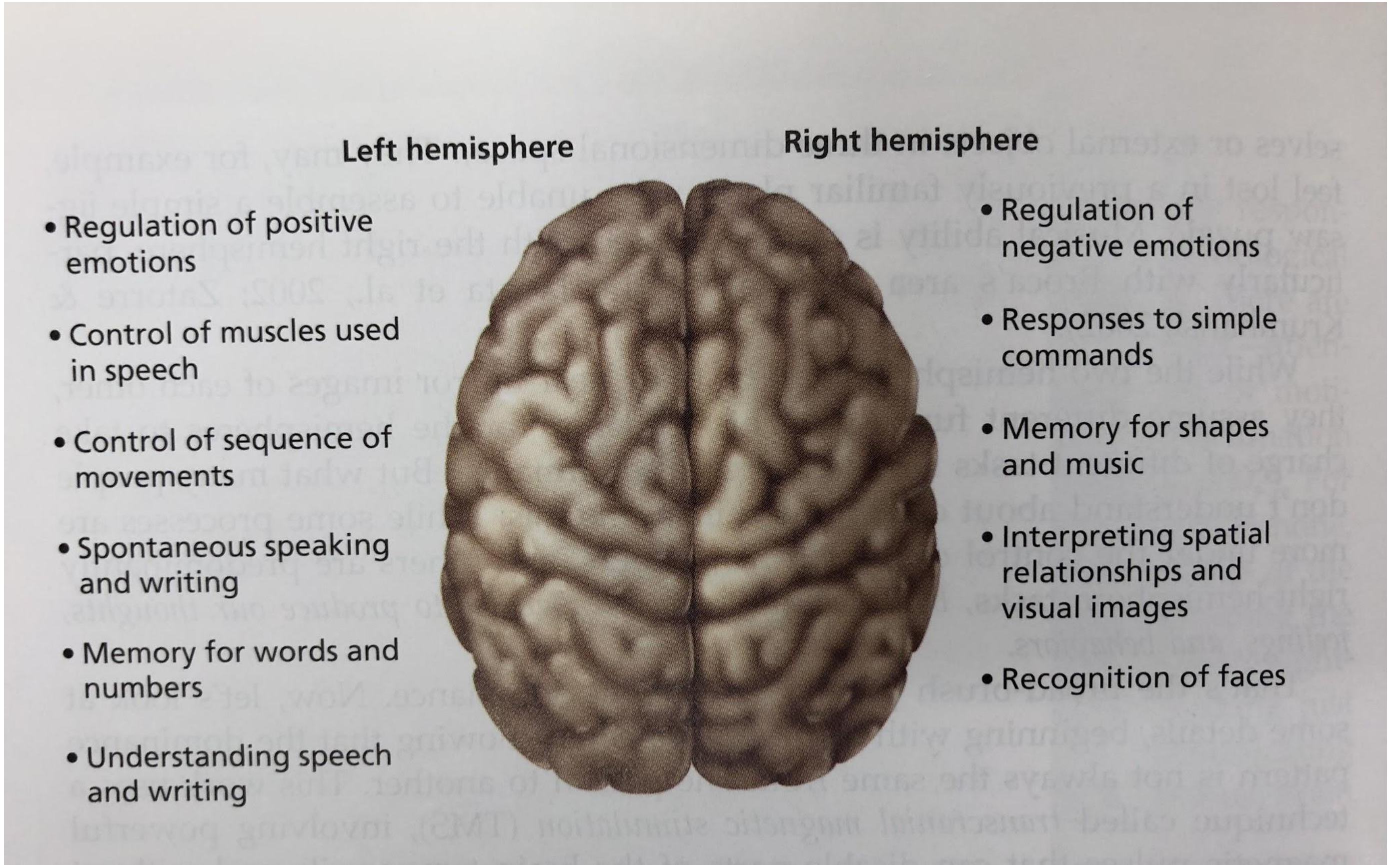


Input from the left field of view is processed by the right hemisphere and vice versa.

Visual fields
Corpus callosum
Left hemisphere
Right hemisphere


KEY · RING
Ring
Speech
L. hand
RING
KEY

Brain Lateralization: each hemisphere has functional specializations



Left hemisphere

- Regulation of positive emotions
- Control of muscles used in speech
- Control of sequence of movements
- Spontaneous speaking and writing
- Memory for words and numbers
- Understanding speech and writing

Right hemisphere

- Regulation of negative emotions
- Responses to simple commands
- Memory for shapes and music
- Interpreting spatial relationships and visual images
- Recognition of faces

Chapter 4: Sensation & Perception

Crash Course - Sensation & Perception

Crash Course - Homunculus

Crash Course - Perceiving is Believing

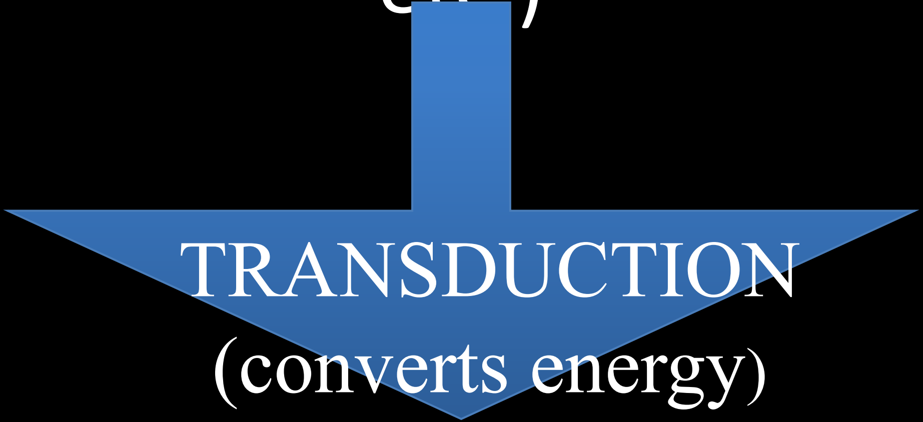
Sensation & Perception Tricky Stuff Video

Quizlet

Sensation and Perception

- *Sensation* – An early stage of perception in which neurons in a receptor create an internal pattern of nerve impulses that represent the conditions that stimulated it – either inside or outside the body
- *Perception* – A process that makes sensory patterns meaningful and more elaborate

Sense receptors receive energy (light, sound, etc.)



TRANSDUCTION

(converts energy)

Into electrochemical energy (neural messages – *action potentials* - that our brain can understand)

Sensory Adaptation

- *Sensory adaptation* –
  Loss of responsiveness in receptor cells after stimulation has remained unchanged for a while (*constant stimulation*)

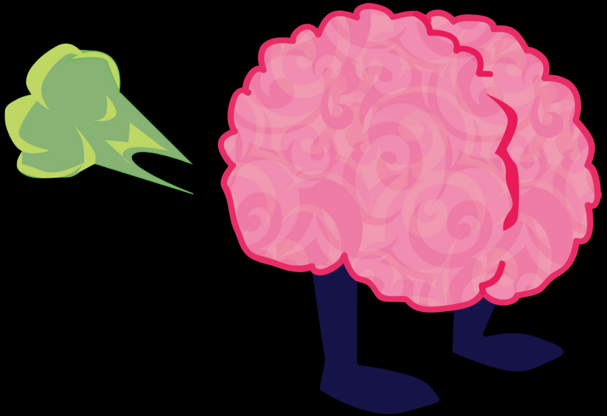
“nose blind” ad

Habituation

- Learning not to respond to *repeated presentation* of a stimulus
- Examples:
  - An organism may learn to stop responding to a loud noise when it realizes there are no consequences
  - A couple moves to a house that is near train tracks. Initially, the sound of the trains keep them up at night, but over time they no longer wake.

Absolute Threshold

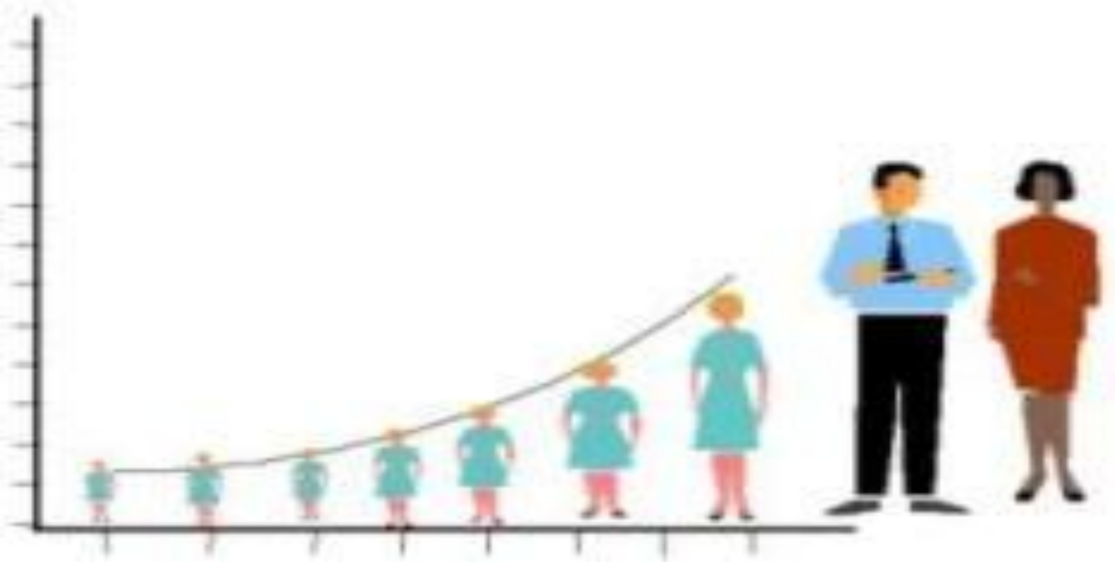
- Weakest level (minimum amount) of a stimulus that can be accurately detected 50% of the time



Difference Threshold

- Smallest amount by which a stimulus can be changed and the difference be detected (also called just noticeable difference – JND)

Small cumulative increments:
We don't notice a child's growth in 24 hours – BELOW the JND



Weber’s Law

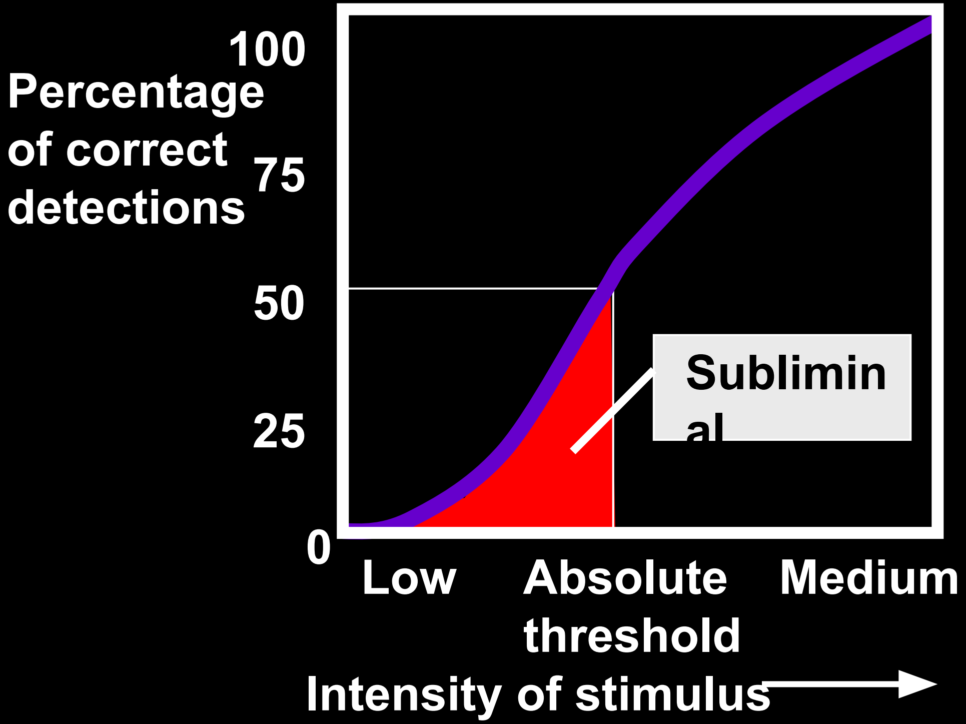
- The JND is always large when the stimulus intensity is high, and small when the stimulus intensity is low
- JND is proportional to the strength of the original stimulus – for the average person to perceive their difference, the two objects must differ in weight by *5% (FIX THIS IN NOTES)*

[Weber’s Law Video]

VOLUME 23
Weber's law

Classical Psychophysics

- You either detect a stimulus or you don't (above or below your threshold)
- Signal Detection Theory is different – takes into account human judgement – we're always comparing sensory info w/ expectations & biological conditions are always changing



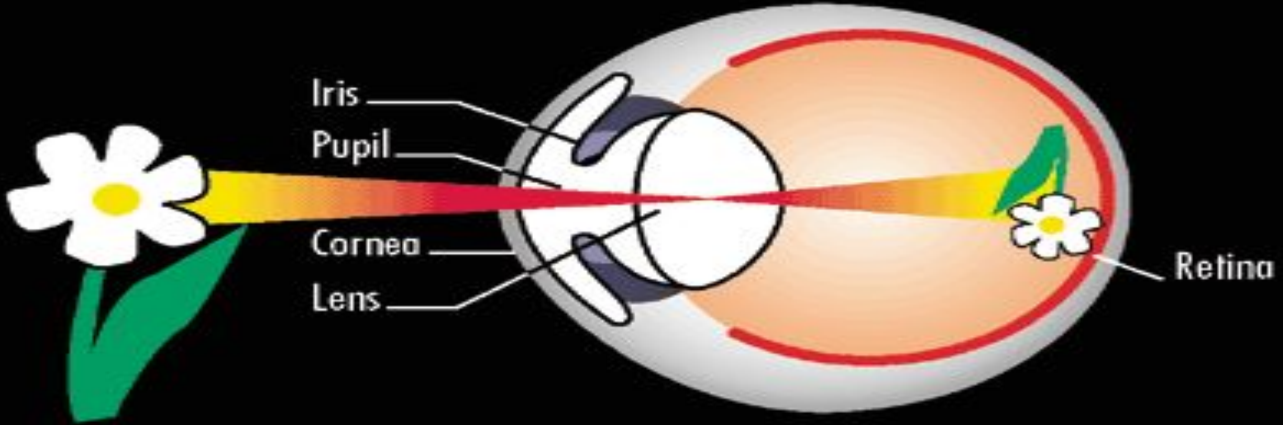
How Vision Works

Light enters the eye through the cornea, which bends light to provide focus.

Pupil and iris adjust size depending on amount of light

Lens focuses incoming rays on the retina; an **upside down**

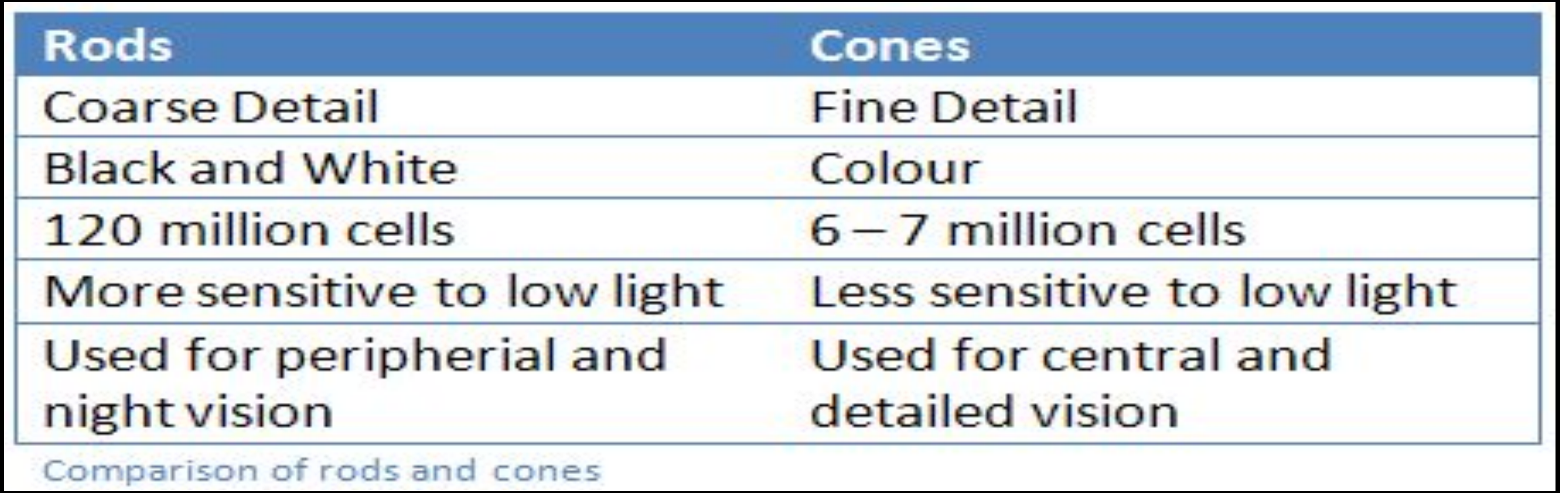
rmed


Iris
Pupil
Cornea
Lens
Retina

Photoreceptors (specialized neurons called rods and cones) on the retina absorb light energy and respond by creating neural impulses (FIRE ACTION POTENTIALS!!)

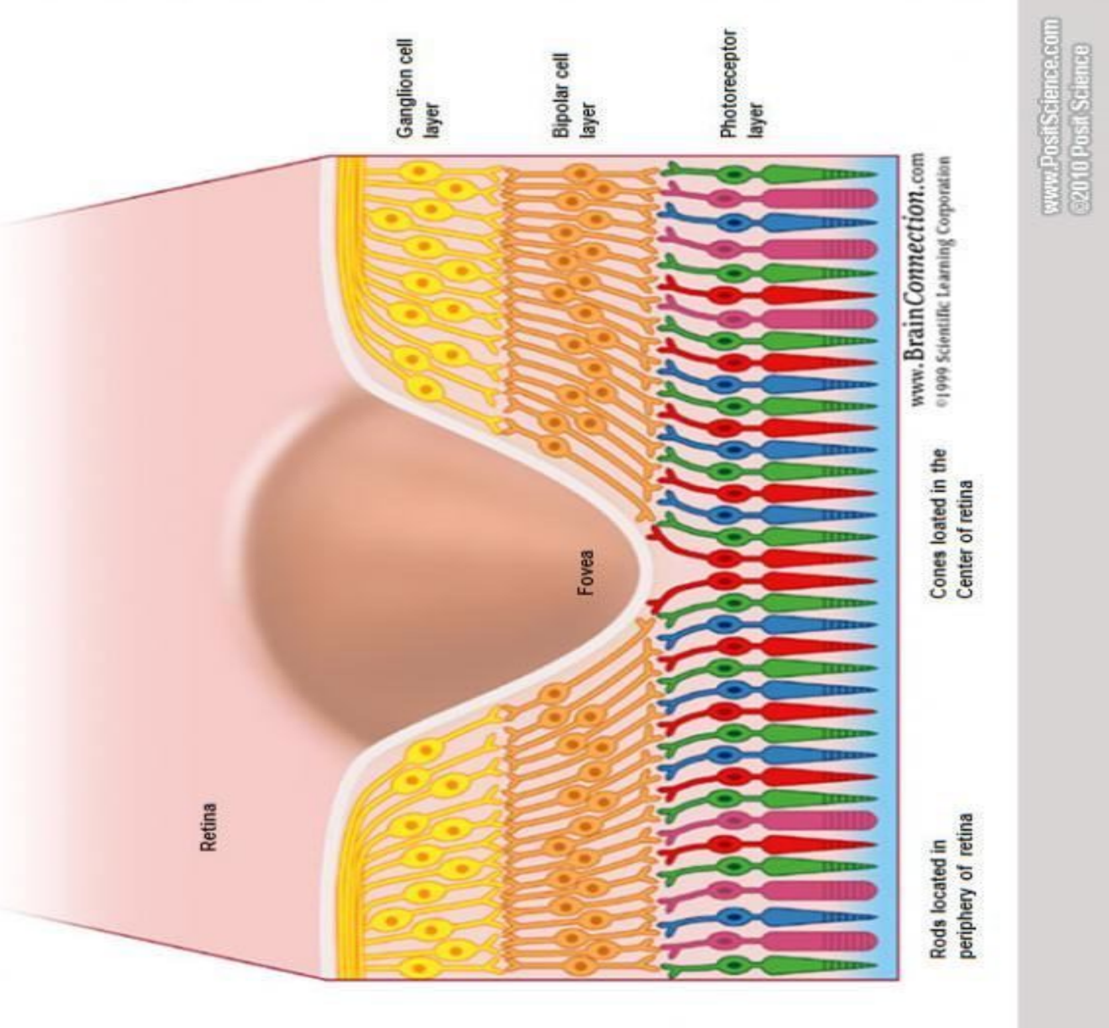
Cones make distinctions necessary for color vision in brighter light; concentrated in the fovea, at center of retina which gives us sharpest vision

Rods detect low intensities of light at night, work in peripheral vision



Rods	Cones
Coarse Detail	Fine Detail
Black and White	Colour
120 million cells	6 – 7 million cells
More sensitive to low light	Less sensitive to low light
Used for peripherial and night vision	Used for central and detailed vision

Comparison of rods and cones


Ganglion cell layer
Bipolar cell layer
Photoreceptor layer
www.PositScience.com
©2010 Posit Science
www.BrainConnection.com
©1999 Scientific Learning Corporation
Cones loated in the Center of retina
Fovea
Retina
Rods located in periphery of retina

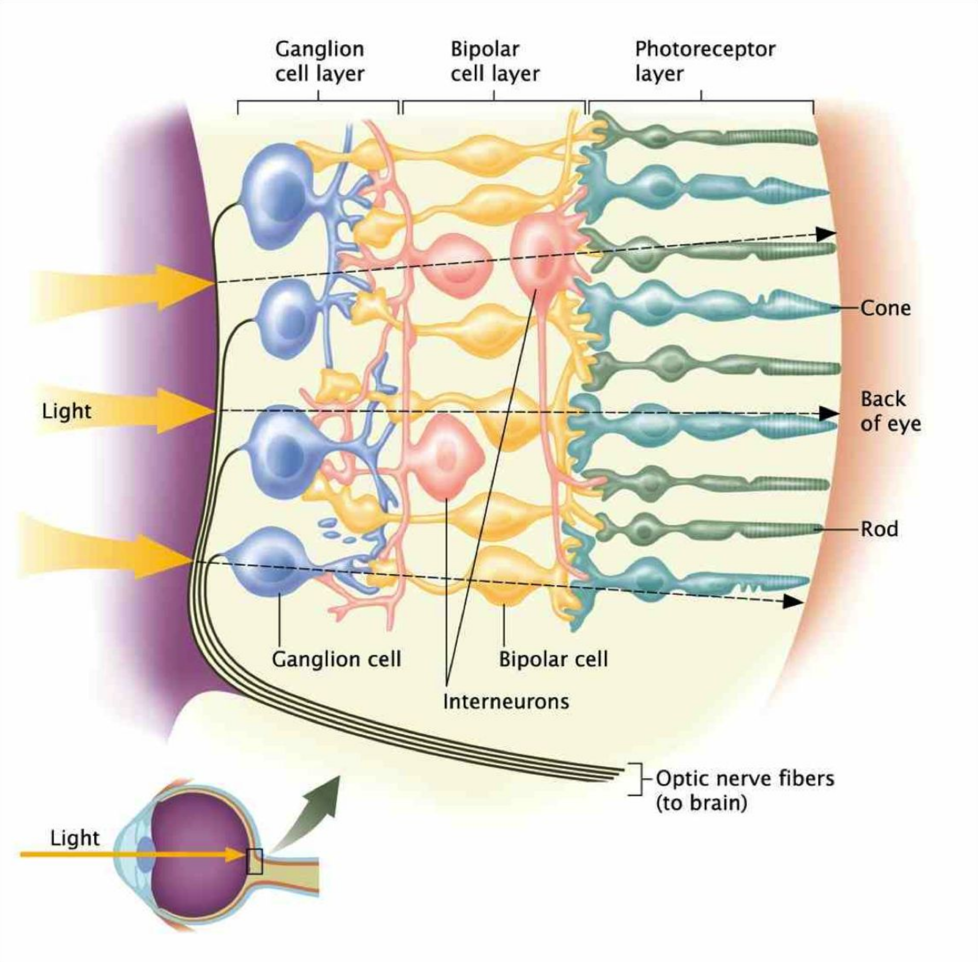
# of cones – allows us to focus our vision and see fine detail

Note: there are fewer cones as you get farther from the fovea – hence no color in your peripheral vision!

Transduction

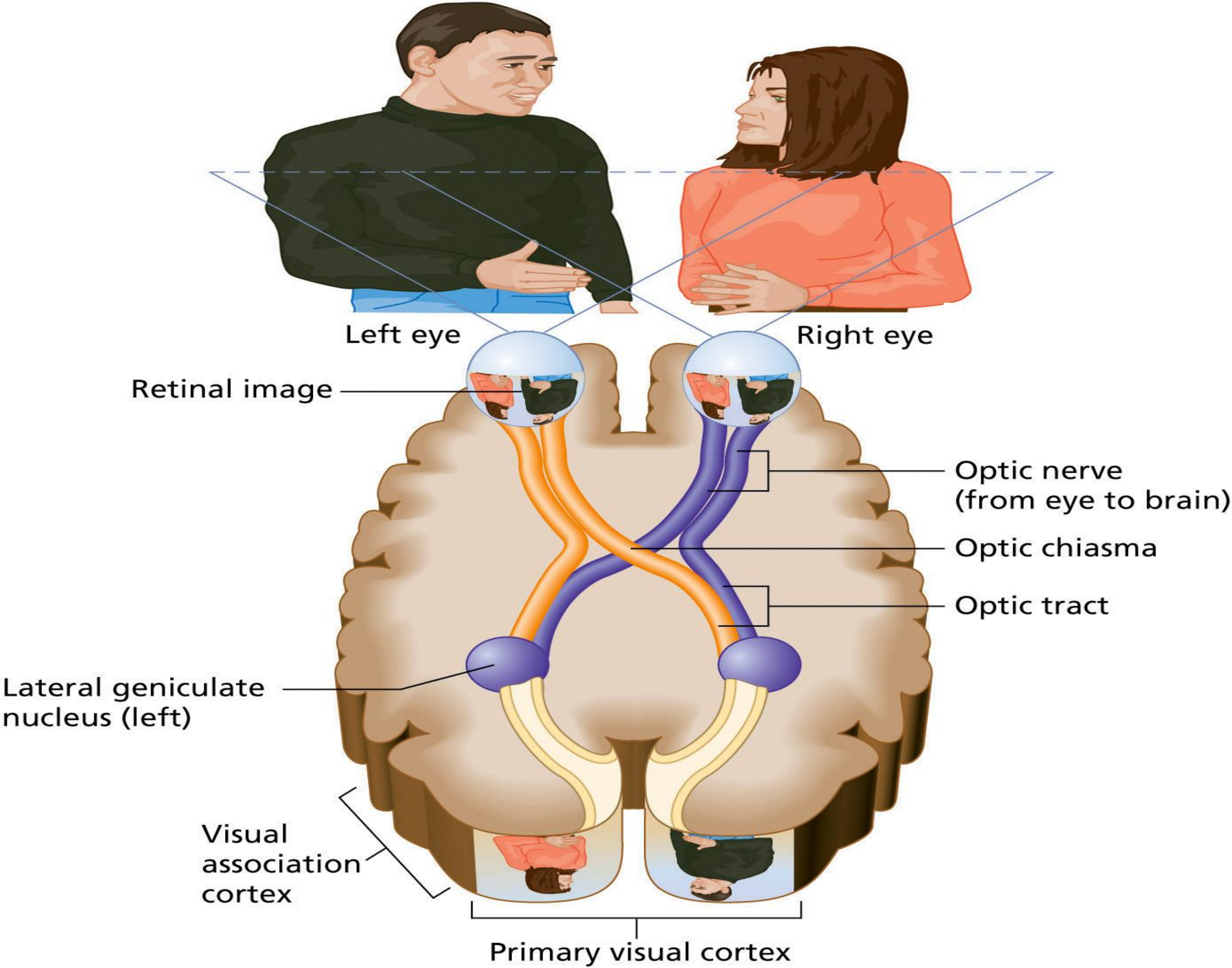
Bipolar cells in retina collect impulses from cones and rods and shuttle them to ganglion cells

Optic nerve (axons of ganglion cells bundled together) transports info from eye to the brain – ***it carries NO LIGHT – only patterns of nerve impulses***


Ganglion cell layer
Bipolar cell layer
Photoreceptor layer
Cone
Light
Back of eye
Rod
Ganglion cell
Bipolar cell
Interneurons
Optic nerve fibers (to brain)
Light

Branches of the optic nerve cross at the optic chiasm so that info from each visual field crosses to the opposite side of the brain for processing

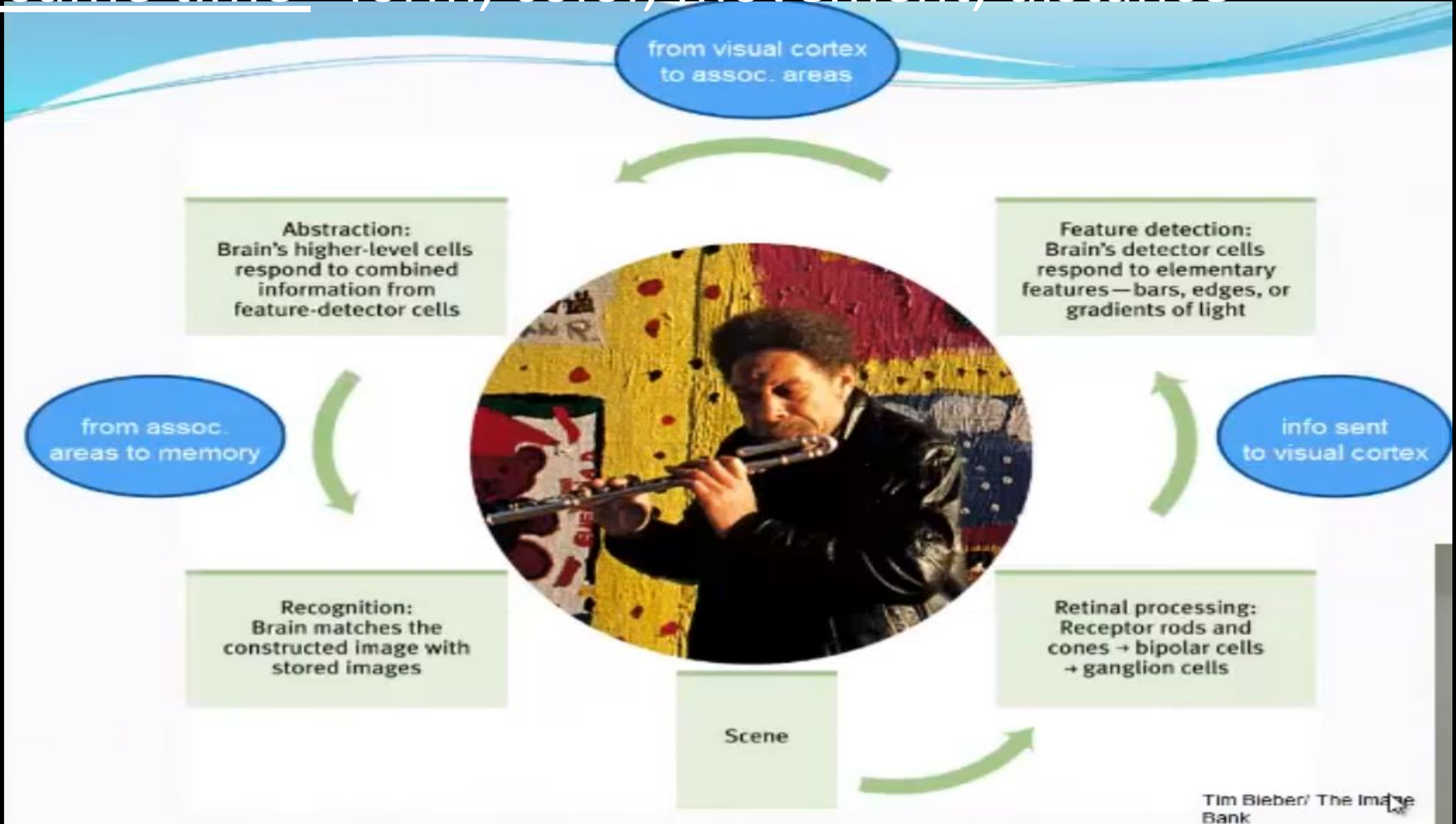
Lateral geniculate nucleus (LGN) of thalamus routes info to occipital lobe's visual cortex


Left eye
Right eye
Retinal image
Optic nerve (from eye to brain)
Optic chiasma
Optic tract
Lateral geniculate nucleus (left)
Visual association cortex
Primary visual cortex

Feature detector cells in visual cortex extract info about specific features of a stimulus – length, slant/angle, color, boundary, location, movement

Waterfall Effect

Parallel processing – brain processes different kinds of info at the same time - form, color, movement, distance



Scene

Retinal processing:
Receptor rods and cones → bipolar cells → ganglion cells

info sent to visual cortex

Feature detection:
Brain's detector cells respond to elementary features—bars, edges, or gradients of light

from visual cortex to assoc. areas

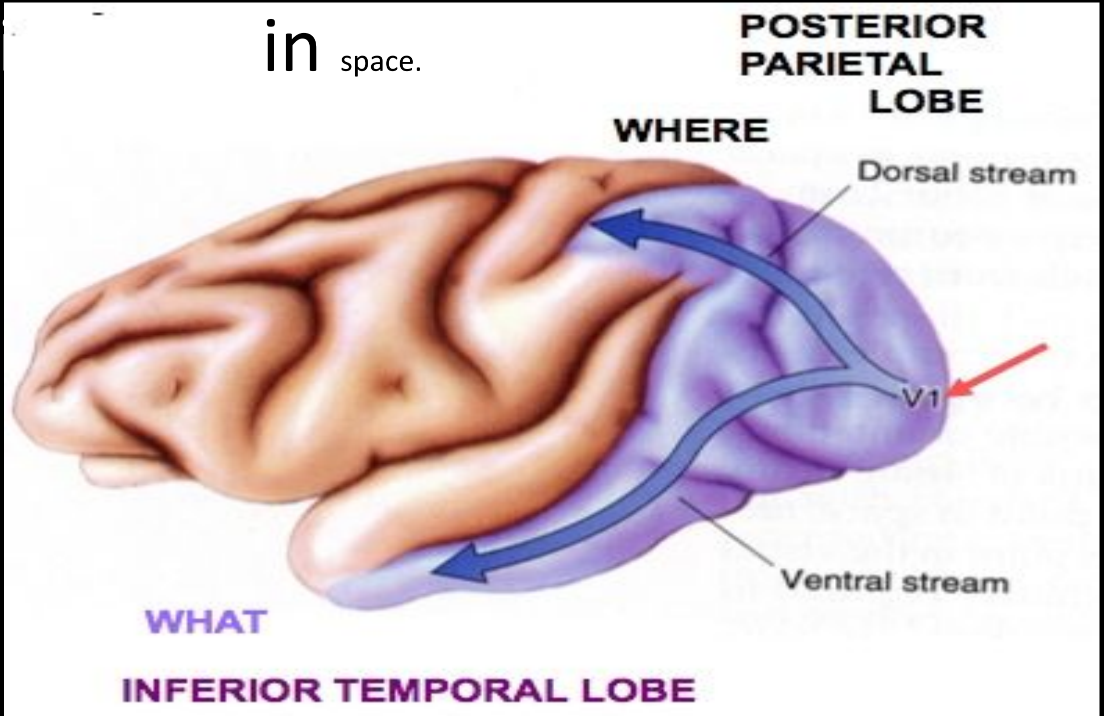
Abstraction:
Brain's higher-level cells respond to combined information from feature-detector cells

from assoc. areas to memory

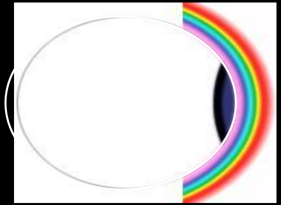
Recognition:
Brain matches the constructed image with stored images

Tim Bieber/ The Image Bank

Visual info travels to “what” pathway (temporal lobe) so we can identify objects. Info travels to “where” pathway (parietal lobe) so we can locate objects i in space.


POSTERIOR PARIETAL LOBE
WHERE
Dorsal stream
V1
Ventral stream
WHAT
INFERIOR TEMPORAL LOBE

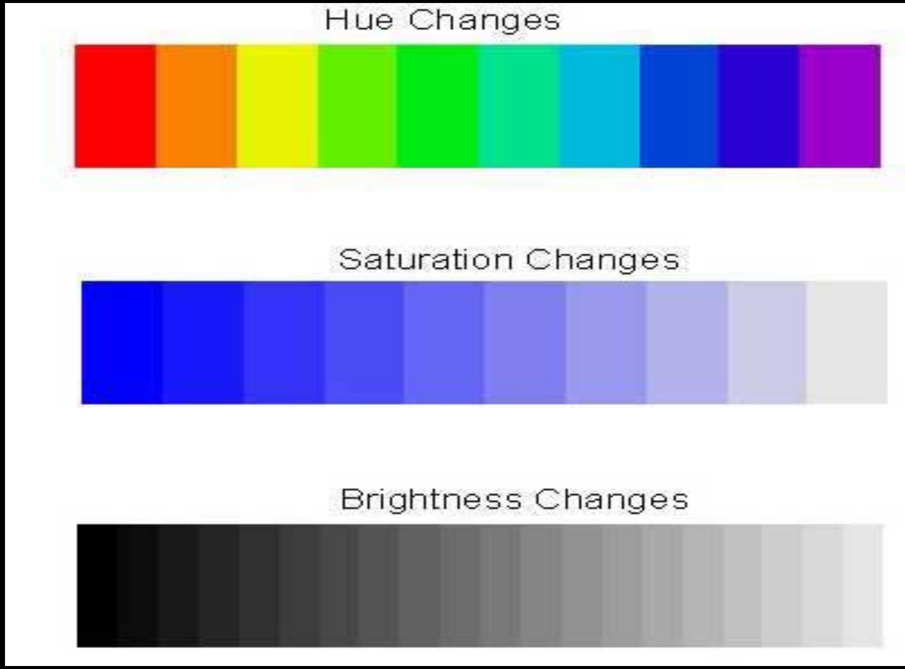
How does the visual system create COLOR?



3 Sensations of Color

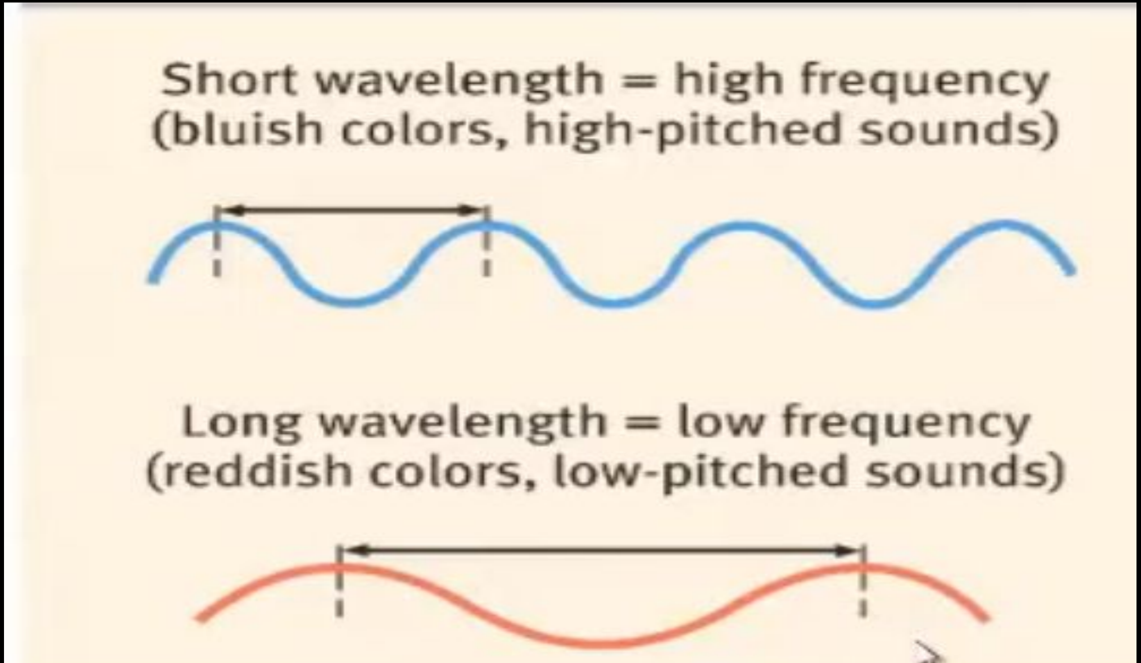
Our brain constructs color from variations in light waves!

- Hue - wavelength
- Brightness – wave height


Hue Changes
Saturation Changes
Brightness Changes

Wavelength – Hue (color)

- Distance from the peak of one wave to the peak of the next wave – determines COLOR

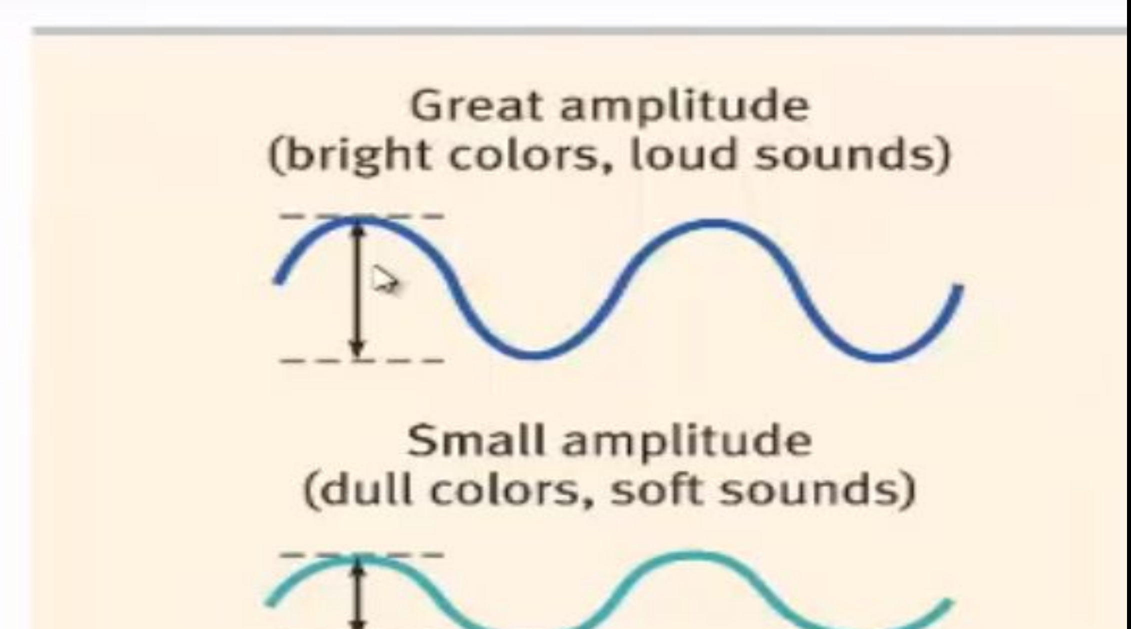


Short wavelength = high frequency
(bluish colors, high-pitched sounds)

Long wavelength = low frequency
(reddish colors, low-pitched sounds)

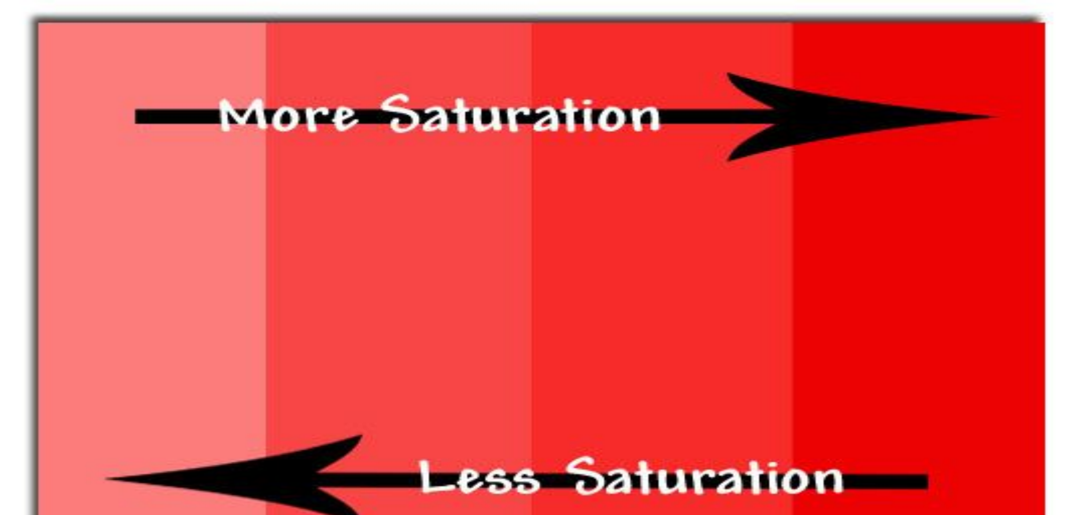
Wave height (amplitude) - Brightness

- Intensity; amount of energy in wave determined by amplitude; height of wave


Great amplitude
(bright colors, loud sounds)
Small amplitude
(dull colors, soft sounds)

Waveform - Saturation

- Richness/purity of light
  - Complexity of light wave
  - Smooth waves = pure, highly saturated colors
  - Complex waves = muddy, faded colors


More Saturation
Less Saturation

Trichromatic Theory (Helmholtz)

- Explains 1st stage of color processing
- Retina contains 3 types of photoreceptors – CONES – that respond to different wavelengths

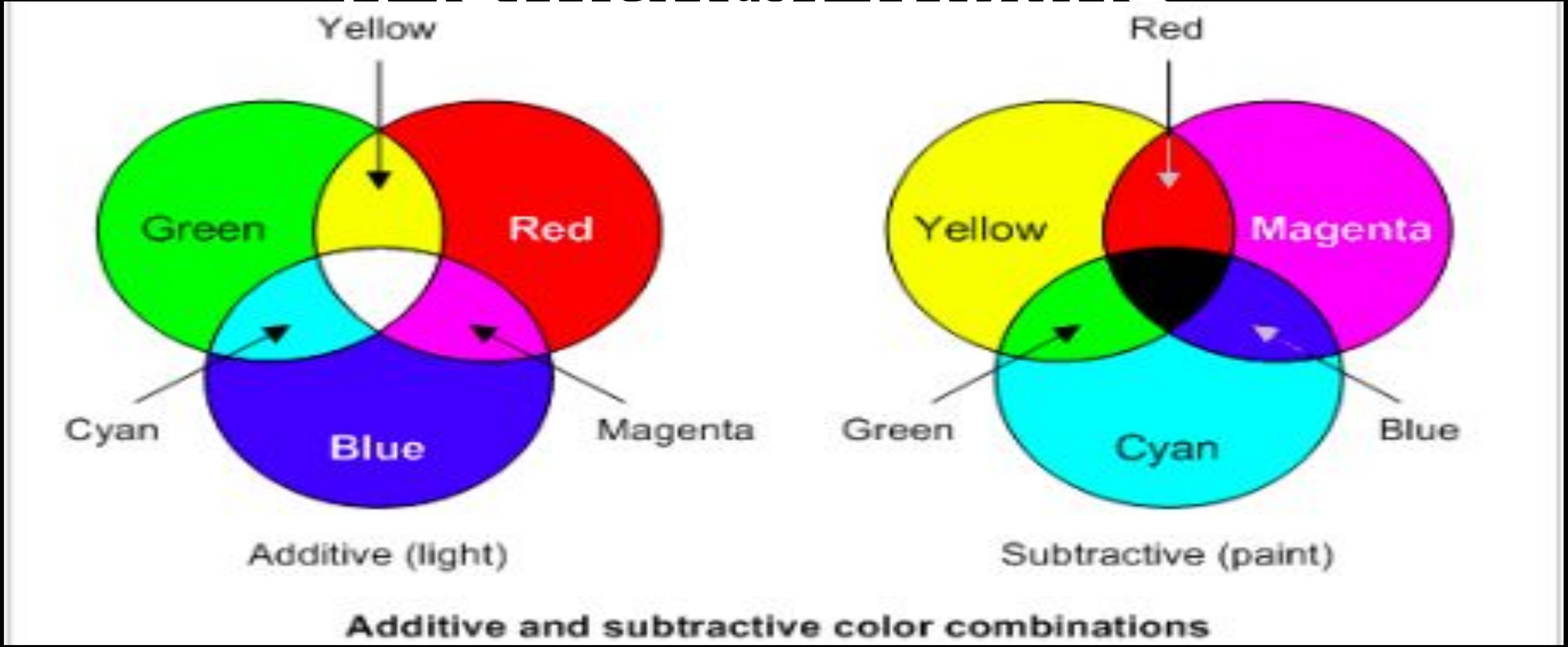
1. Blue – SHORT length
2. Red – LONG length
3. Green – MEDIUM length
    - Yellow – when long/medium cones active

Color blindness

- Genetic disorder that prevents an individual from discriminating certain colors due to a weakness in or lack of one of the cones
- Most common form: difficulty distinguishing between red and green

Complete color deficiency is VERY

Additive (Lights) v. Subtractive (Pigments) Mixing


Yellow
Green
Red
Cyan
Blue
Magenta
Additive (light)
Red
Yellow
Magenta
Green
Cyan
Blue
Subtractive (paint)

Additive and subtractive color combinations

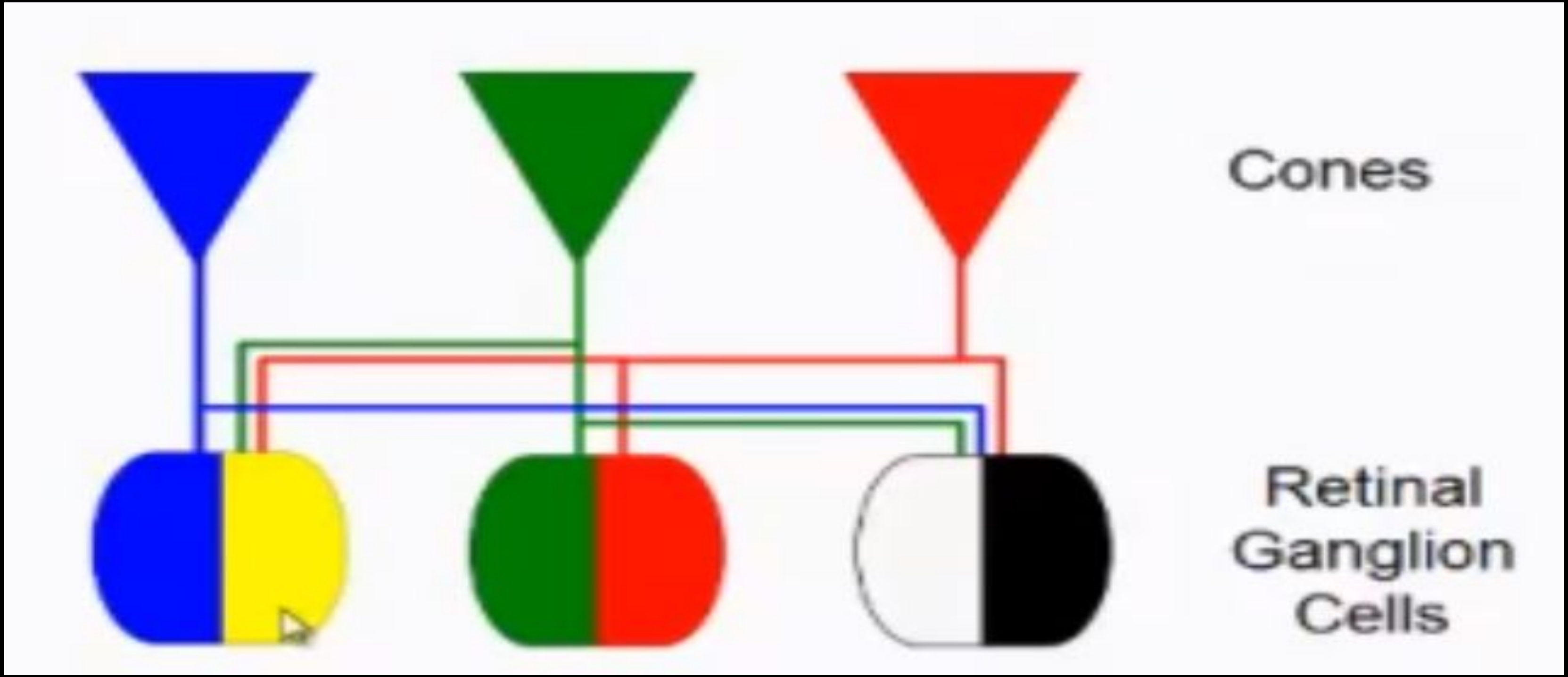
Adding v. subtracting wavelengths from the light reflected into the eye (wavelengths absorbed by pigments)

Opponent Process Theory

- Explains 2nd stage of color processing
- Ewald HERING - opponent neurons in visual pathways between cones and brain - have an excitatory response to some wavelengths and an inhibitory response to wavelengths in the opponent part of the spectrum.
  - 3 opponent-process channels
    - Red v. green
    - Blue v. yellow
    - White v. black/light v. dark

**explains why we see afterimages

Opponent Process Theory

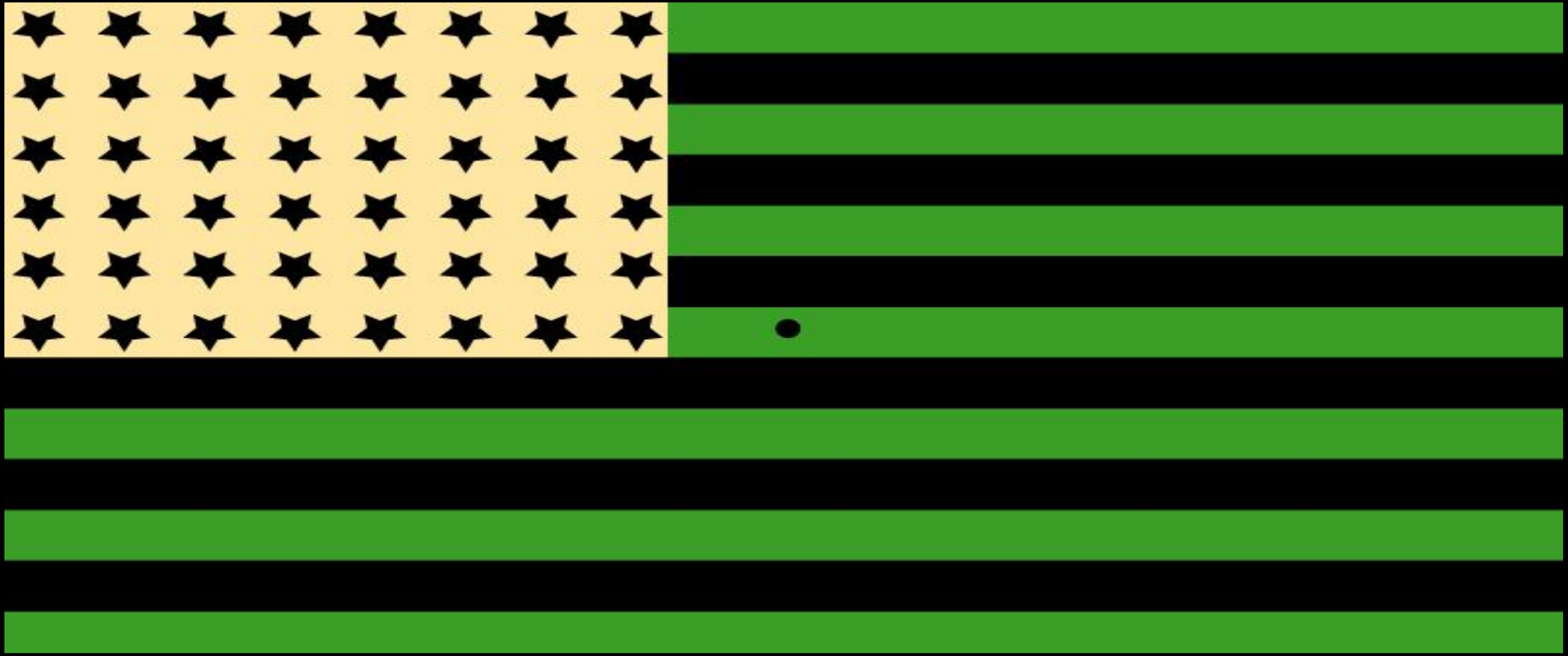

Cones
Retinal Ganglion Cells

Afterimages

- Sensations that linger after the stimulus is removed
- Opponent process theory explains these

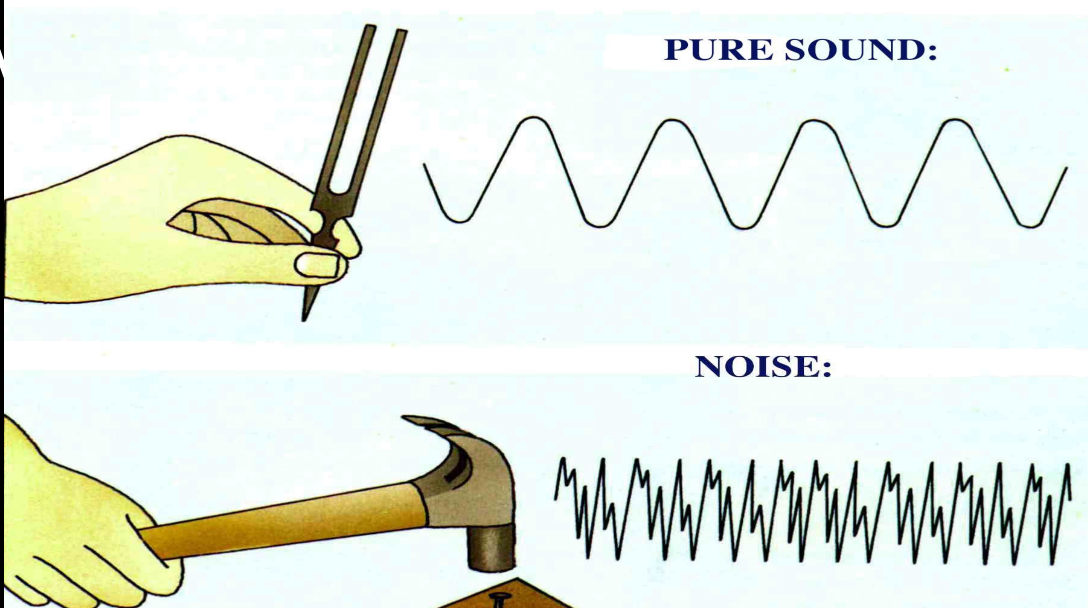
If we stare at a green object (fatiguing green portion of red-green channel – we use up those cells' abilities to fire action potentials) we see a red afterimage bc the green channel is temporarily weaker
(only red will fire action potentials)

How about if we stare at a yellow object??



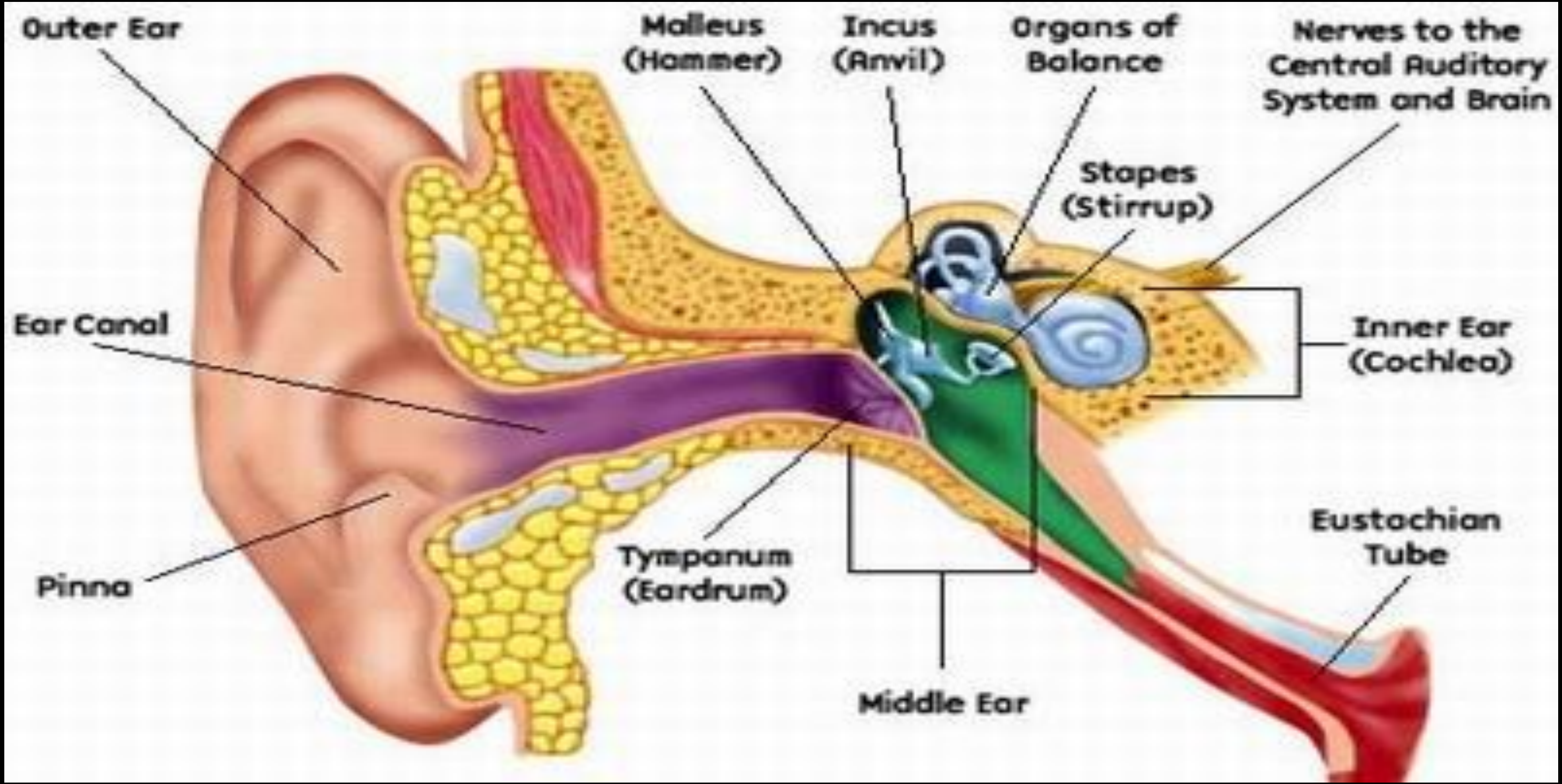
SOUND

- Mechanical energy created by vibrating objects in the environment
  - Vibrations create areas of high and low pressure that mov a pond


PURE SOUND:
NOISE:

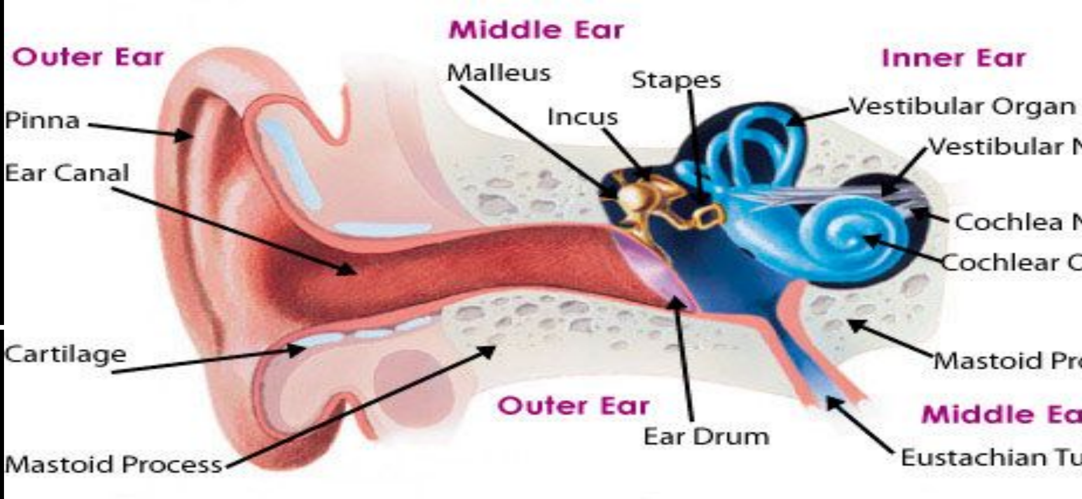
3 Regions of the Ear

- Outer ear – pinna (visible), ear canal and eardrum
  - Pinna funnels sound to ear drum
- Middle ear – 3 small bones (ossicles)
  - Hammer, anvil, stirrup – eardrum vibrations pass through bones and are amplified
- Inner ear – cochlea, semi-circular canals (balance), auditory nerve – runs between cochlea and auditory cortex in temporal lobe *where transduction occurs

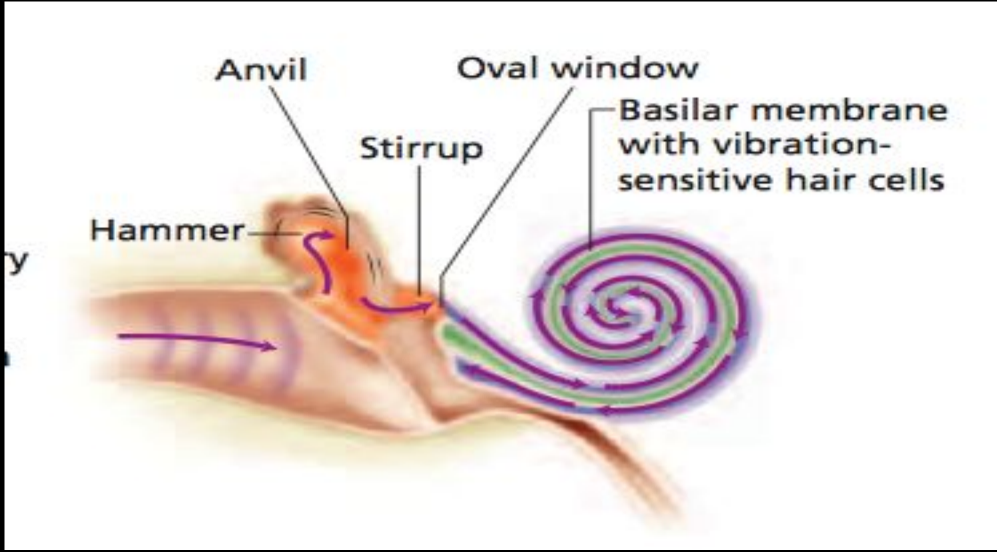

Outer Ear
Malleus (Hammer)
Incus (Anvil)
Organs of Balance
Nerves to the Central Auditory System and Brain
Stapes (Stirrup)
Ear Canal
Inner Ear (Cochlea)
Eustachian Tube
Tympanum (Eardrum)
Pinna
Middle Ear

How Hearing Works: Sound to Neural Messages

1. Sound waves enter pinna and move through ear canal to eardrum – tympanic membrane – which transmit vibrations to middle ear bones
2. Vibrations passed to cochlea – filled with fluid – a “wave” is created and spreads through cochlea causing vibration in the basilar membrane (thin strip of hairy tissue in cochlea)


Middle Ear
Outer Ear
Inner Ear
Malleus
Stapes
Incus
Vestibular Organ
Vestibular N
Pinna
Ear Canal
Cochlea N
Cochlear C
Cartilage
Mastoid Pr
Outer Ear
Middle Ea
Ear Drum
Eustachian Tu
Mastoid Process

3. *Basilar membrane converts vibrations to neural messages (TRANSDUCTION HAPPENS HERE!!)* – hair cells stimulate sensory nerve endings connected to hair cells which have an excitatory response and transform vibrations into neural activity
4. Neural messages travel to the auditory cortex (temporal lobe) via the auditory nerve

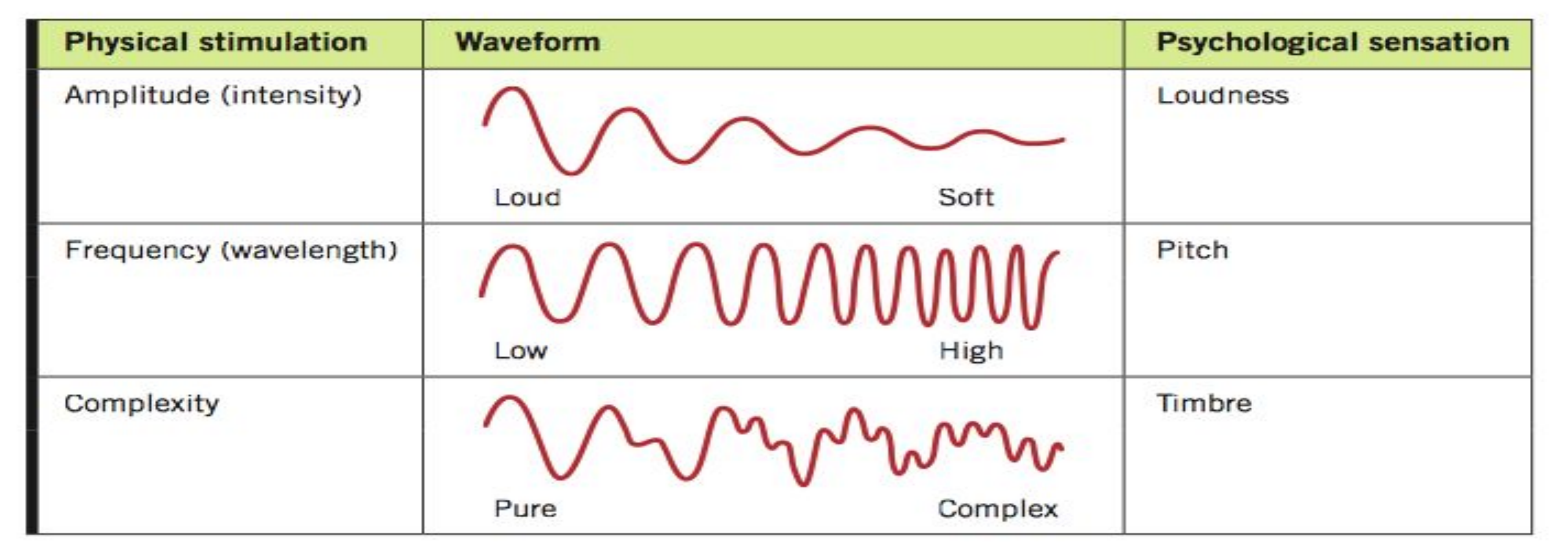

Anvil
Oval window
Basilar membrane with vibration-sensitive hair cells
Stirrup
Hammer

How are Auditory and Visual Sensations alike?

- Transduction occurs BUT through a different pathway (optic/auditory nerves) and to different locations (occipital – visual cortex/temporal – auditory cortex)
- Make use of frequency (hue, pitch), amplitude (brightness, loudness) & waveform (saturation, timbre)
- Difference: in cortexes, not type of message – different regions of the brain produce different sensations

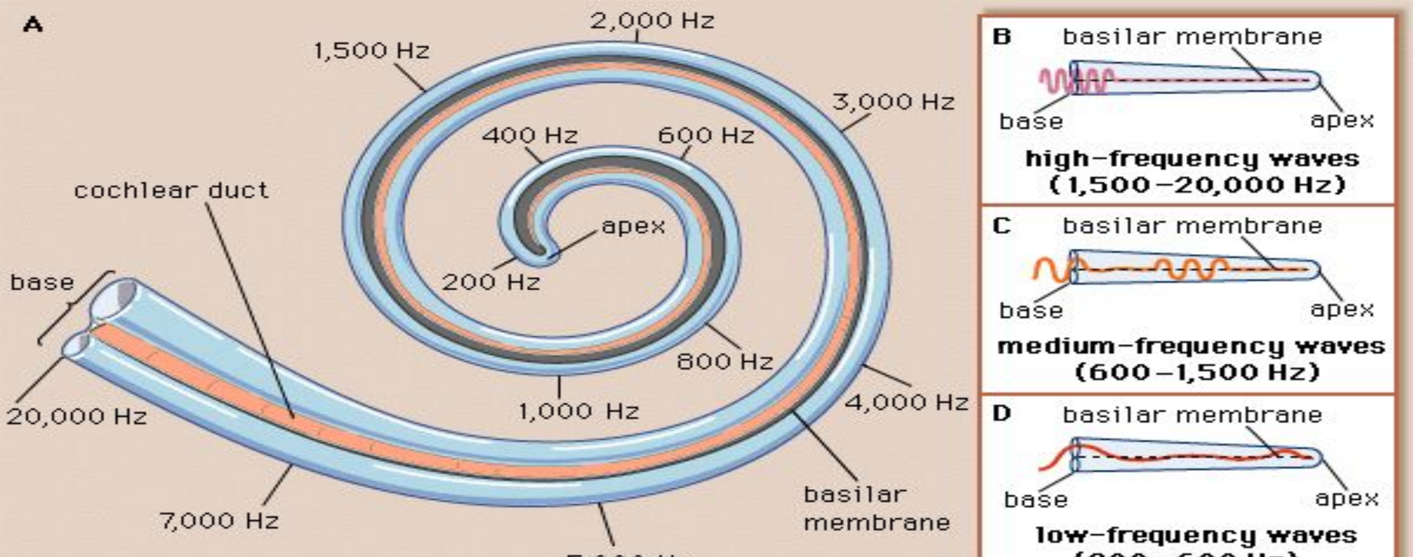
The Psychological Sensations of Sound – How do we distinguish one from another??

- The brain converts characteristics of sound into three psychological sensations:

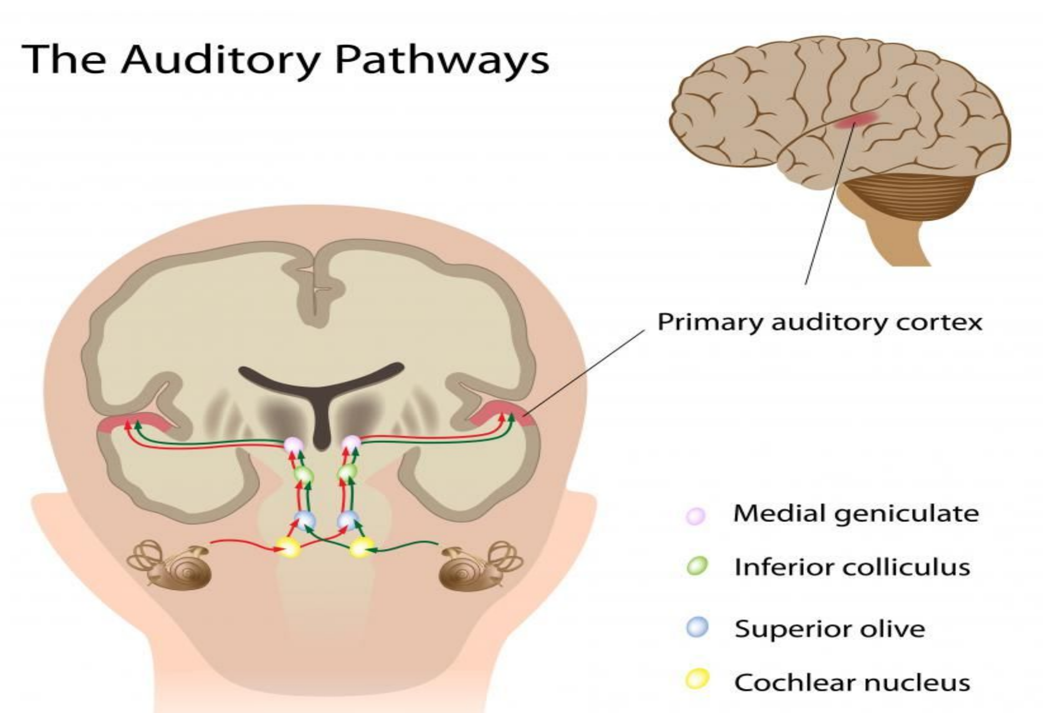


Physical stimulation	Waveform	Psychological sensation
Amplitude (intensity)	Loud Soft	Loudness
Frequency (wavelength)	Low High	Pitch
Complexity	Pure Complex	Timbre

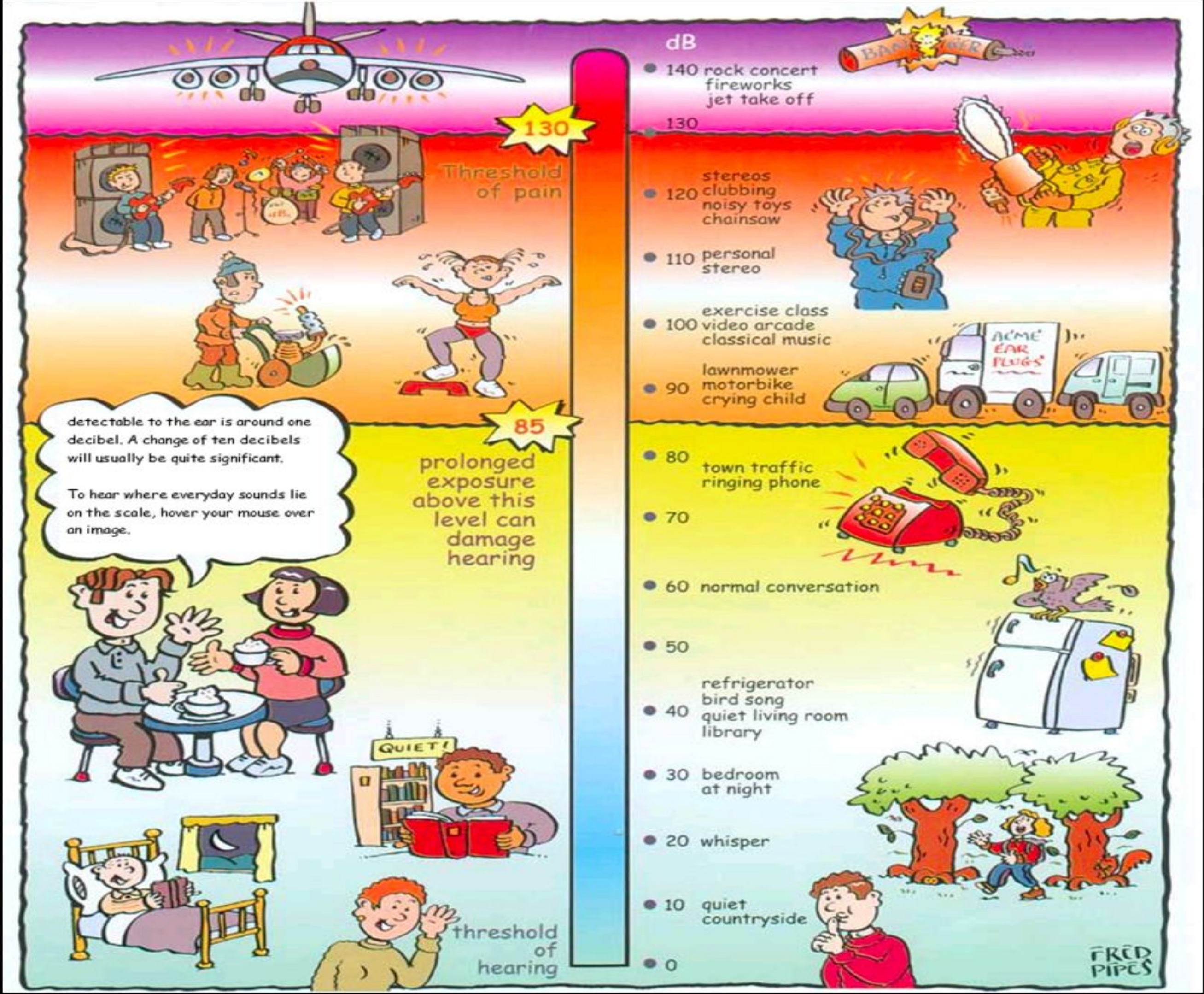
- *Pitch* – Sensory characteristic of sound produced by the frequency of the sound wave
  - *Place theory* – Helmholtz - we hear different pitches because different sound waves can cause activity on different areas along the BM. The areas activated
    alc ain
    to


A
2,000 Hz
1,500 Hz
3,000 Hz
400 Hz
600 Hz
cochlear duct
apex
base
200 Hz
800 Hz
20,000 Hz
1,000 Hz
4,000 Hz
basilar membrane
7,000 Hz
B
basilar membrane
base
apex
high-frequency waves (1,500–20,000 Hz)
C
basilar membrane
base
apex
medium-frequency waves (600–1,500 Hz)
D
basilar membrane
base
apex
low-frequency waves

- *Frequency theory* - frequency (speed) of the neural signals traveling along the auditory nerve determines the pitch


The Auditory Pathways
Primary auditory cortex
Medial geniculate
Inferior colliculus
Superior olive
Cochlear nucleus

- *Loudness* – produced by the amplitude (intensity) of the sound wave


dB
140 rock concert
fireworks
jet take off
130
Threshold of pain
120 stereos
clubbing
noisy toys
chainsaw
110 personal stereo
100 exercise class
video arcade
classical music
90 lawnmower
motorbike
crying child
ACME EAR PLUGS
85
prolonged exposure above this level can damage hearing
80 town traffic
ringing phone
70
60 normal conversation
50
40 refrigerator
bird song
quiet living room
library
30 bedroom at night
20 whisper
10 quiet countryside
0
threshold of hearing
QUIET!
detectable to the ear is around one decibel. A change of ten decibels will usually be quite significant.
To hear where everyday sounds lie on the scale, hover your mouse over an image.
FRED PIPES

- *Timbre* –
  Quality of a sound wave that derives from the wave's complexity

Arf
yelp
Bark
woof

How we distinguish one person's voice from

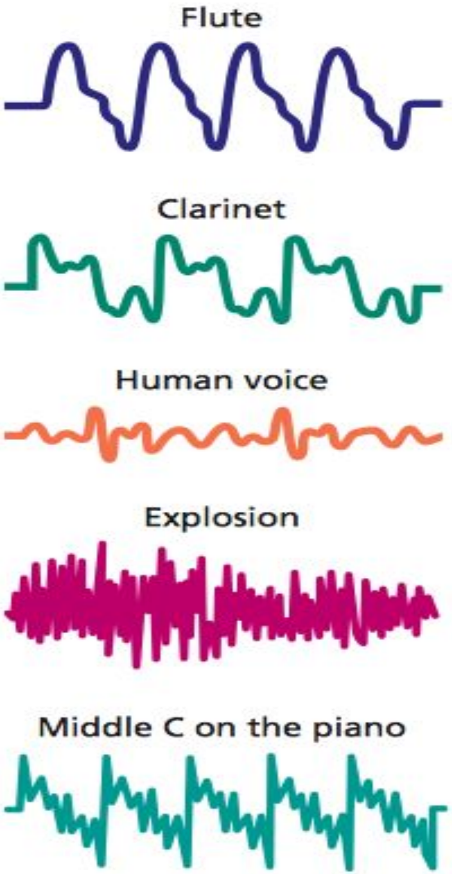


FIGURE 3.10
Waveforms of Familiar Sounds
Each sound is a distinctive combination of several pure tones.

Deafness

- *Conduction deafness* – when sound is not conducted efficiently through the outer ear canal to the eardrum and the tiny bones (ossicles) of the middle ear; usually involves a reduction in sound level or the ability to hear faint sound
- *Nerve deafness* –
An inability to hear, linked to a deficit in the body's ability to transmit impulses from the cochlea to the brain, usually involving the auditory nerve or higher auditory processing centers

Sound Localization

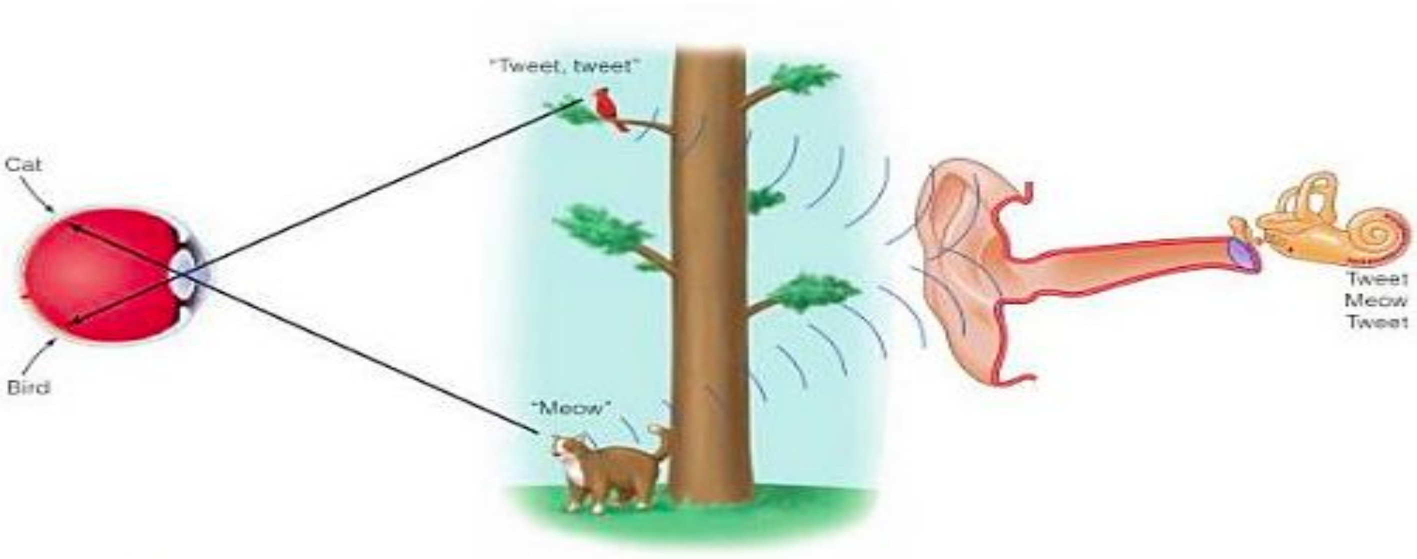


Figure 12.3 Comparing location information for vision and hearing. *Vision:* The bird and the cat are at different locations and are imaged on different places on the retina. *Hearing:* The frequencies in the sounds from the bird and the cat are spread out over the cochlea, with no regard to the locations of the bird and the cat.

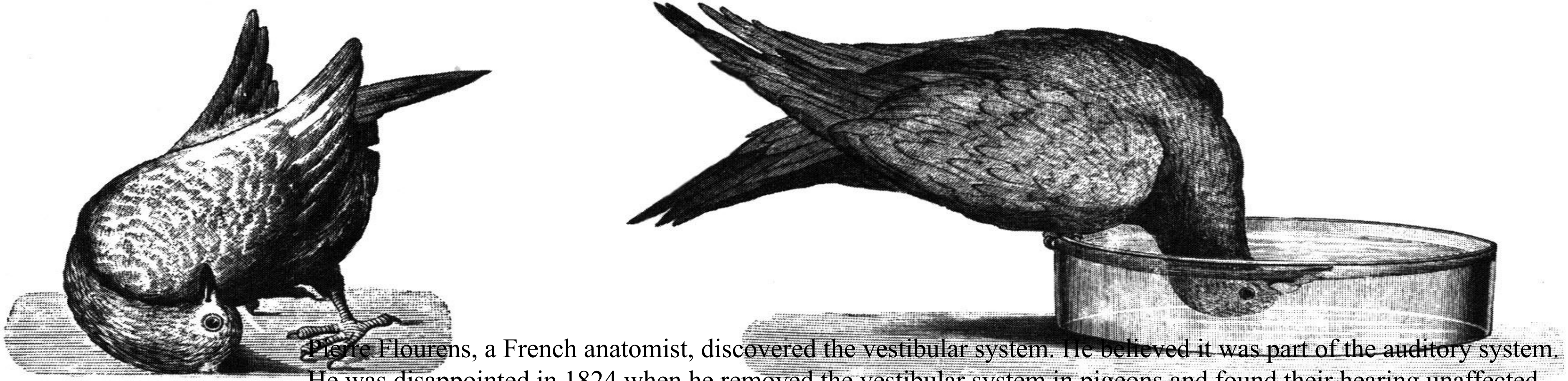
To determine location of sound we use cues - a sound is often detected by one ear more intensely and a fraction of a second earlier than it is detected by the other ear.

What do our sensory receptors do?

- change detectors!! More sensitive to change than constant stimulation (adaptation)
- give us information about aspects of our internal or external environment
- Transduce physical stimuli into neural message
- Make use of only a fraction of available stimulation (remember threshold)

Position and Movement

- *Vestibular sense* – Sense of body orientation with respect to gravity (our BALANCE!)
  - Tracks head movement/body posture (straight, leaning, reclining, upside down)



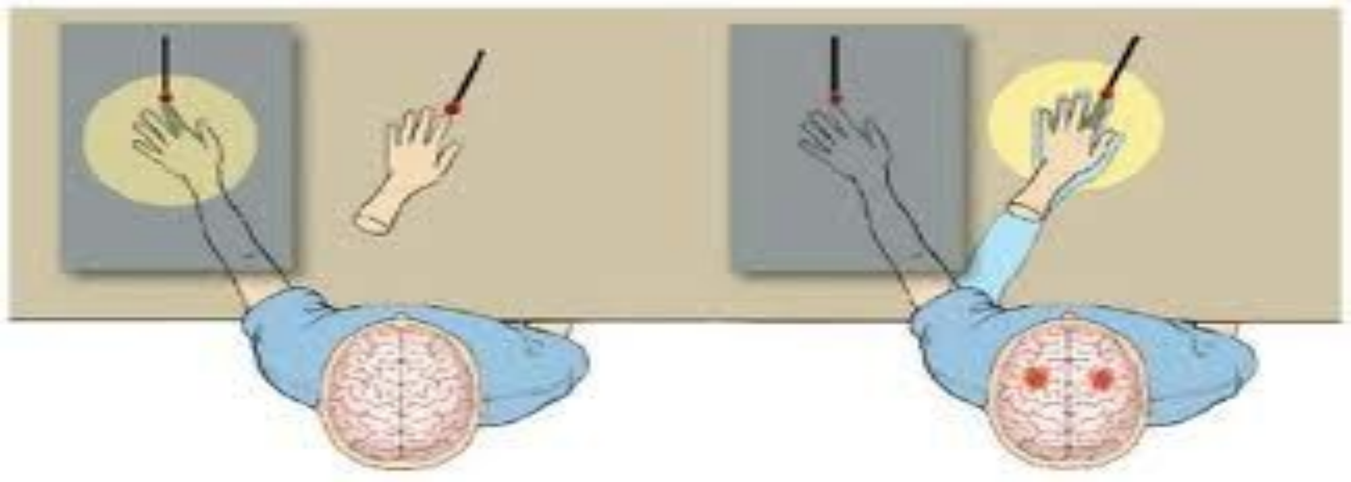
Pierre Flourens, a French anatomist, discovered the vestibular system. He believed it was part of the auditory system. He was disappointed in 1824 when he removed the vestibular system in pigeons and found their hearing unaffected.

- *Kinesthetic sense* – Sense of body position and movement of body parts relative to each other (behavioral – body can detect how it's moving)
  - Receptors connected to parietal lobes; sensory "map" of spatial relationships

London 2012
London 2012
2012

[Proprioception]() – cognitive awareness of body's position in space (subconscious)

Multisensory Integration -
Sight, touch and kinesthesia working together:
the Rubber Hand Illusion

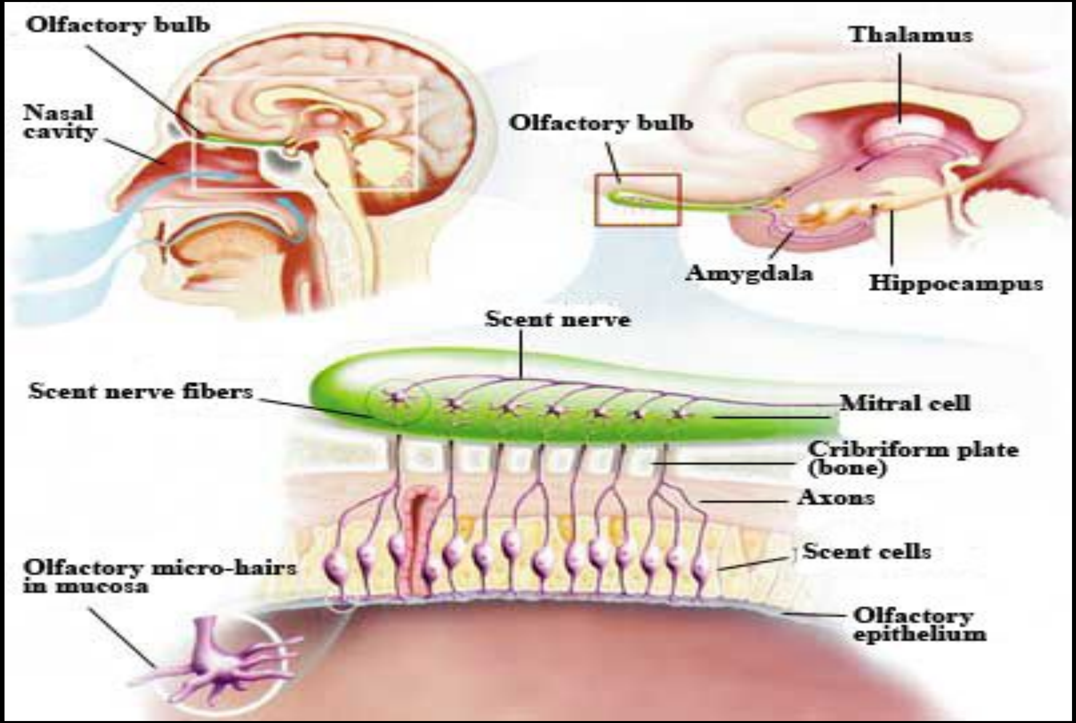


Proprioception video

- Kinesthesia - body's movements and motions (behavioral)
- Proprioception - body's awareness of its movements and behaviors (cognitive)

Olfaction – sense of smell

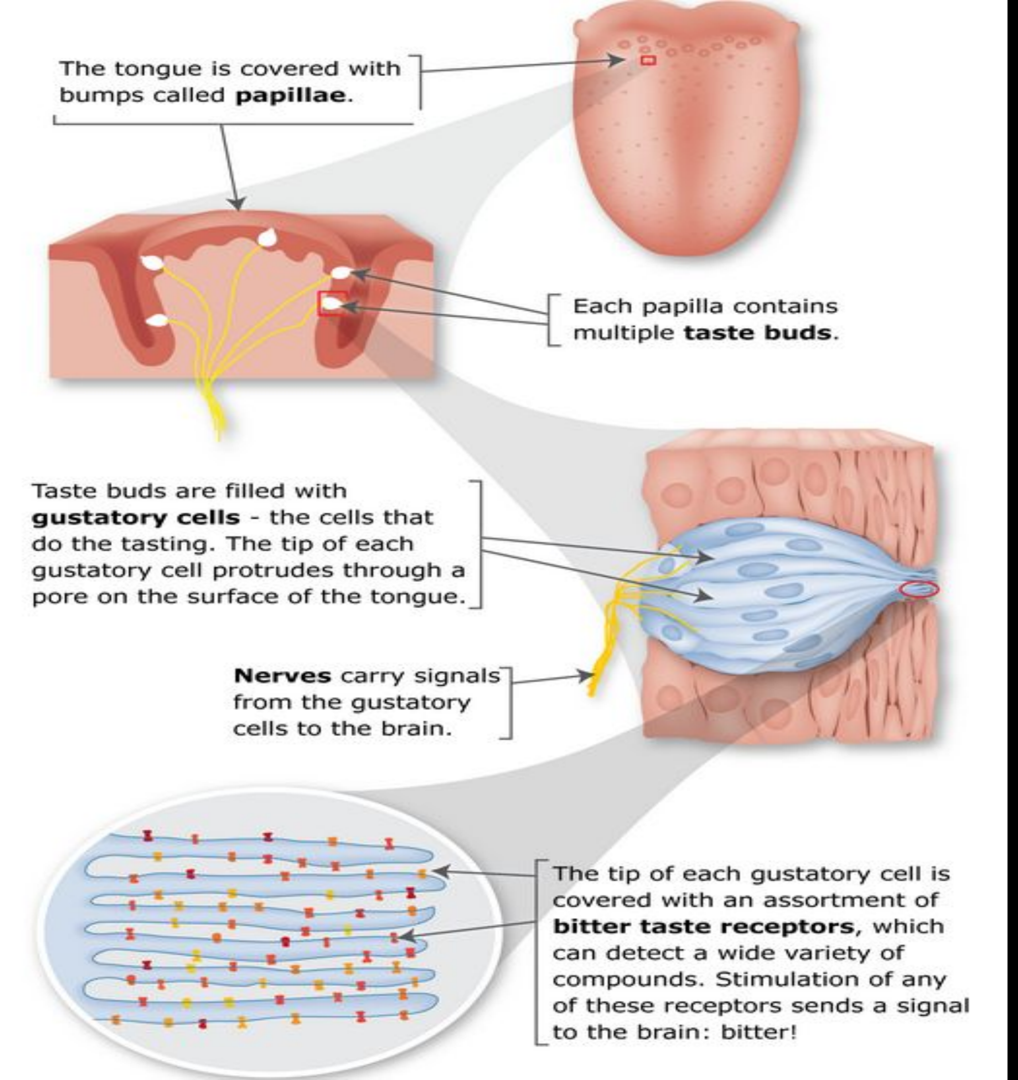
- *Olfactory bulbs* – Brain sites of olfactory processing
- *Pheromones* – Chemical signals released by organisms to communicate with other members of the species


Olfactory bulb
Nasal cavity
Thalamus
Olfactory bulb
Amygdala
Hippocampus
Scent nerve
Scent nerve fibers
Mitral cell
Cribriform plate (bone)
Axons
Scent cells
Olfactory micro-hairs in mucosa
Olfactory epithelium

Gustation – sense of taste

Taste buds – Receptors for taste (primarily on the upper side of the tongue)

- Sweet
- Sour
- Bitter
- Salty



The tongue is covered with bumps called **papillae**.

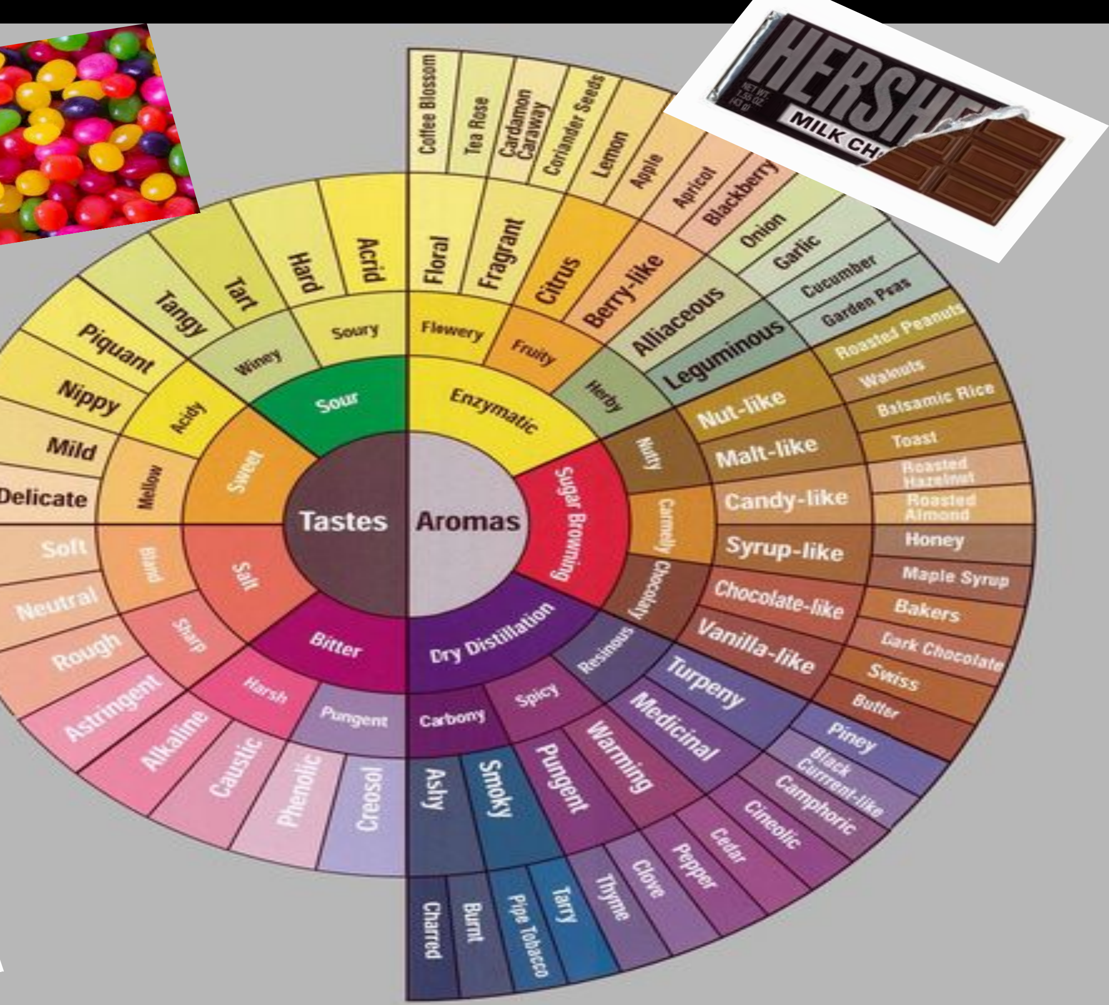
Each papilla contains multiple **taste buds**.

Taste buds are filled with **gustatory cells** - the cells that do the tasting. The tip of each gustatory cell protrudes through a pore on the surface of the tongue.

Nerves carry signals from the gustatory cells to the brain.

The tip of each gustatory cell is covered with an assortment of **bitter taste receptors**, which can detect a wide variety of compounds. Stimulation of any of these receptors sends a signal to the brain: bitter!

“Flavor”

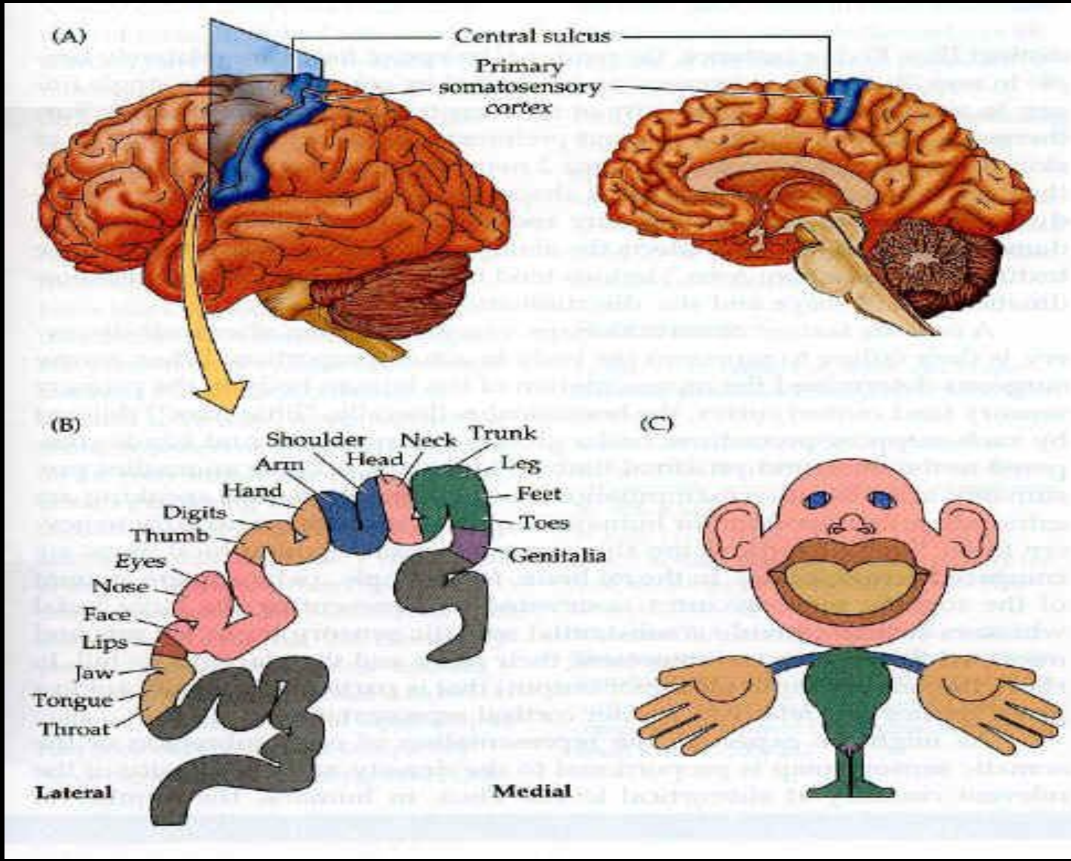

HERSHE
MILK CH
NET WT. 1.55 OZ (43 g)

- When taste and smell come together!

Tastes
Aromas
Sour
Sweet
Salt
Bitter
Soury
Winey
Acidy
Mellow
Bland
Sharp
Harsh
Pungent
Acrid
Hard
Tart
Tangy
Piquant
Nippy
Mild
Delicate
Soft
Neutral
Rough
Astringent
Alkaline
Caustic
Phenolic
Creosol
Enzymatic
Sugar Browning
Dry Distillation
Flowery
Fruity
Herby
Nutty
Carmelly
Chocolaty
Resinous
Spicy
Carbony
Floral
Fragrant
Citrus
Berry-like
Alliaceous
Leguminous
Nut-like
Malt-like
Candy-like
Syrup-like
Chocolate-like
Vanilla-like
Turpeny
Medicinal
Warming
Pungent
Smoky
Ashy
Coffee Blossom
Tea Rose
Cardamon Caraway
Coriander Seeds
Lemon
Apple
Apricot
Blackberry
Onion
Garlic
Cucumber
Garden Peas
Roasted Peanuts
Walnuts
Balsamic Rice
Toast
Roasted Hazelnut
Roasted Almond
Honey
Maple Syrup
Bakers
Dark Chocolate
Swiss
Butter
Piney
Black Currant-like
Camphoric
Cineolic
Cedar
Pepper
Clove
Thyme
Tarry
Pipe Tobacco
Burnt
Charred

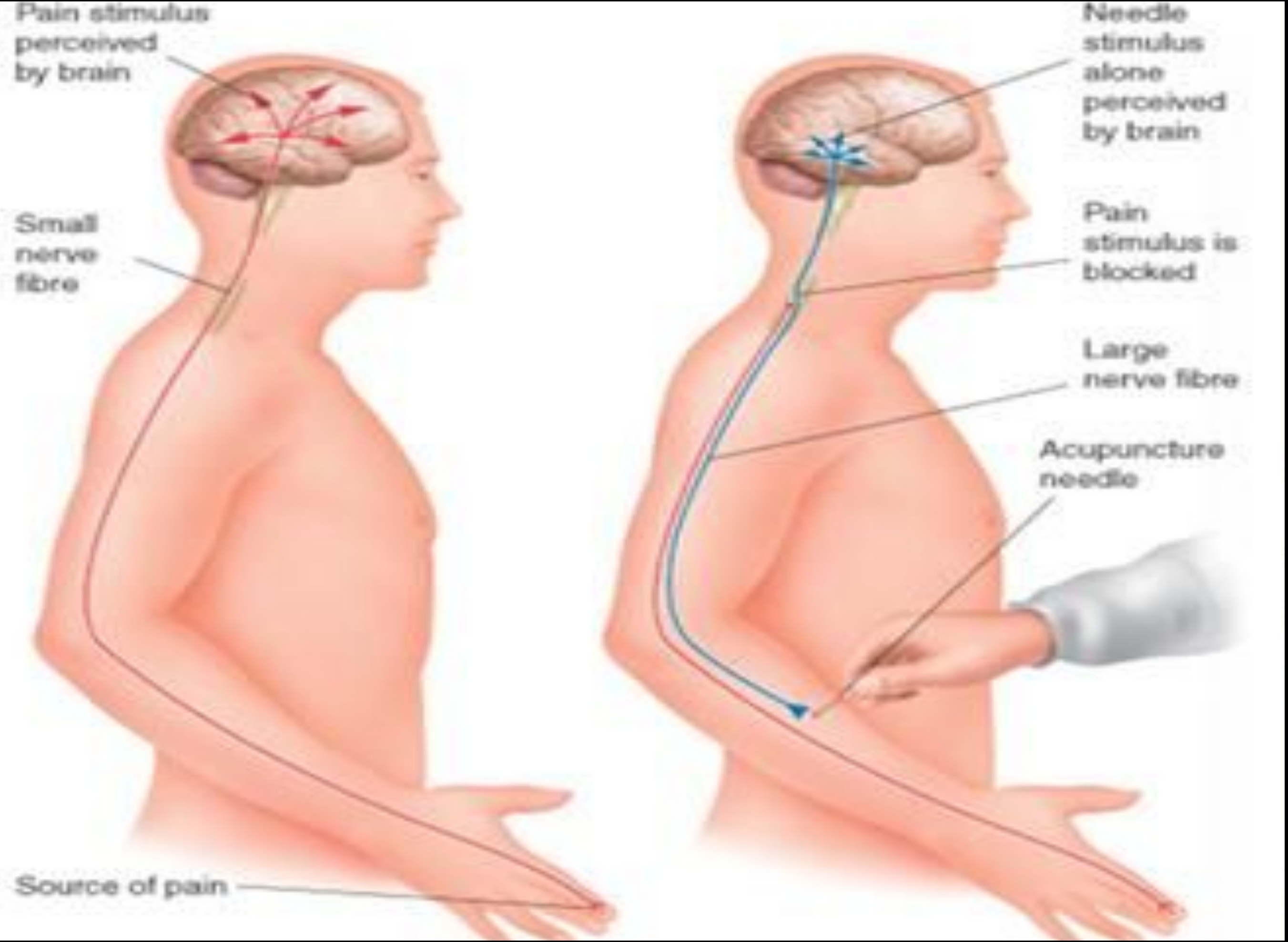
The Skin Senses

- connected to somatosensory cortex
  - Touch (pain, pressure)
  - Warmth
  - Cold


(A)
Central sulcus
Primary somatosensory cortex
(B)
Shoulder
Neck
Trunk
Head
Arm
Leg
Hand
Feet
Digits
Toes
Thumb
Genitalia
Eyes
Nose
Face
Lips
Jaw
Tongue
Throat
Lateral
Medial
(C)

Gate Control Theory

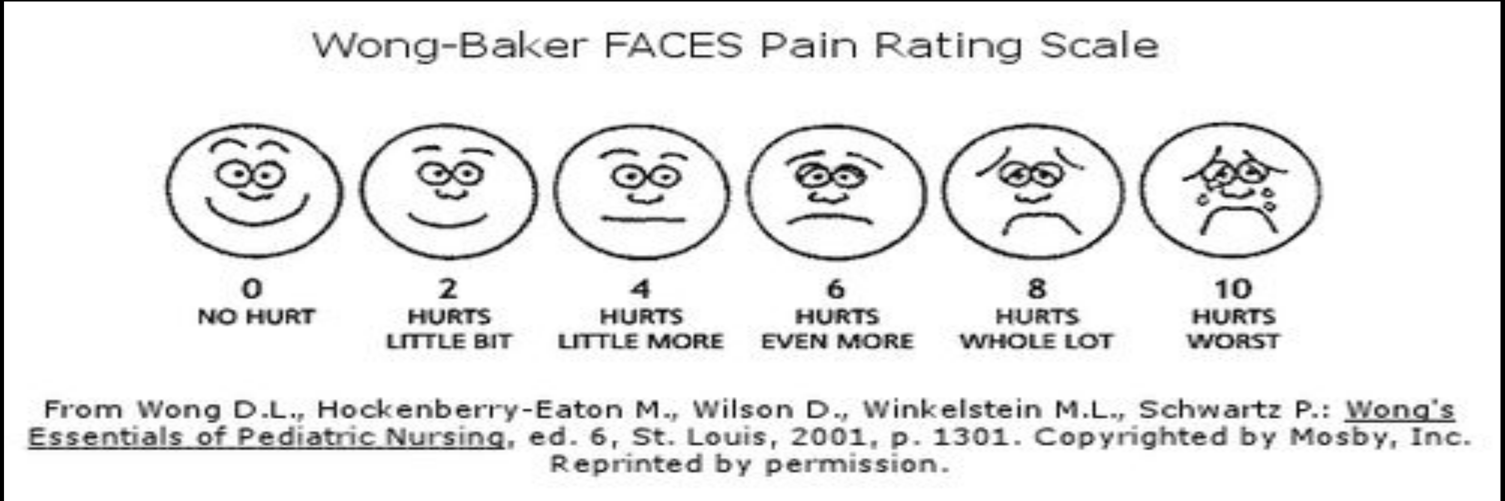
- Melzack and Wall (1965, 1983) – proposed that the spinal cord contains neurological “gates” that either block pain or allow it to be sensed.
  - Small nerve fibers conduct most pain signals
  - Stimulating large nerve (non-pain) fibers closes the “spinal gate”
  - Pain can be controlled by a number of therapies including drugs, surgery, acupuncture, exercise, hypnosis and even through distraction


Pain stimulus perceived by brain
Small nerve fibre
Source of pain
Needle stimulus alone perceived by brain
Pain stimulus is blocked
Large nerve fibre
Acupuncture needle

Periacqueductal gray ("gate") – endorphins cause inhibitory neurons to nullify pain messages ascending in the spinal cord

Pain Control – "Top Down"

- *Placebos* – Substances that appear to be drugs but are not
- *Placebo effect* –A response to a placebo caused by subjects' belief that they are



Wong-Baker FACES Pain Rating Scale

0
NO HURT
2
HURTS
LITTLE BIT
4
HURTS
LITTLE MORE
6
HURTS
EVEN MORE
8
HURTS
WHOLE LOT
10
HURTS
WORST

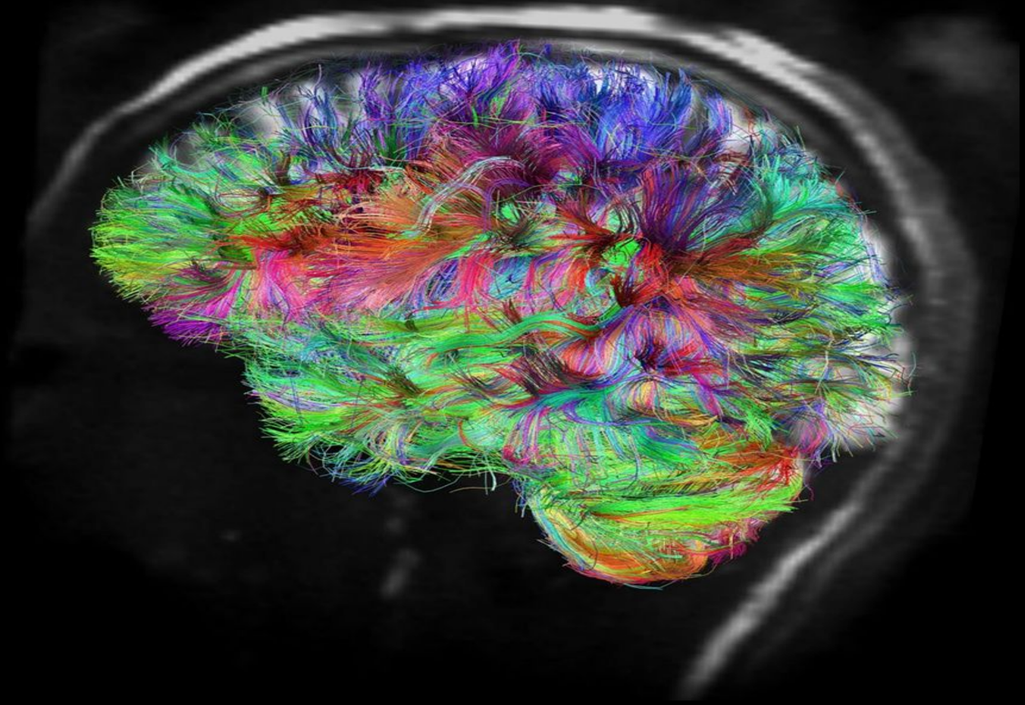
From Wong D.L., Hockenberry-Eaton M., Wilson D., Winkelstein M.L., Schwartz P.: Wong's Essentials of Pediatric Nursing, ed. 6, St. Louis, 2001, p. 1301. Copyrighted by Mosby, Inc. Reprinted by permission.

What is the Relationship Between Perception and Sensation?

- *Perception*- makes sensory patterns meaningful – draws on memory, motivation, emotion, etc.
- *Percept* – Meaningful product of a perception

- Feature detectors: cells in the visual cortex that detect stimulus features – length, slant, color, boundary, movement - S.A.M.

Remember the “waterfall effect”?



Binding problem: how are these features combined??

*synchronized firing patterns

This scan of a normal human subject was acquired using a first-of-its-kind MRI scanner that's 10 times higher in speed and resolution than conventional systems.

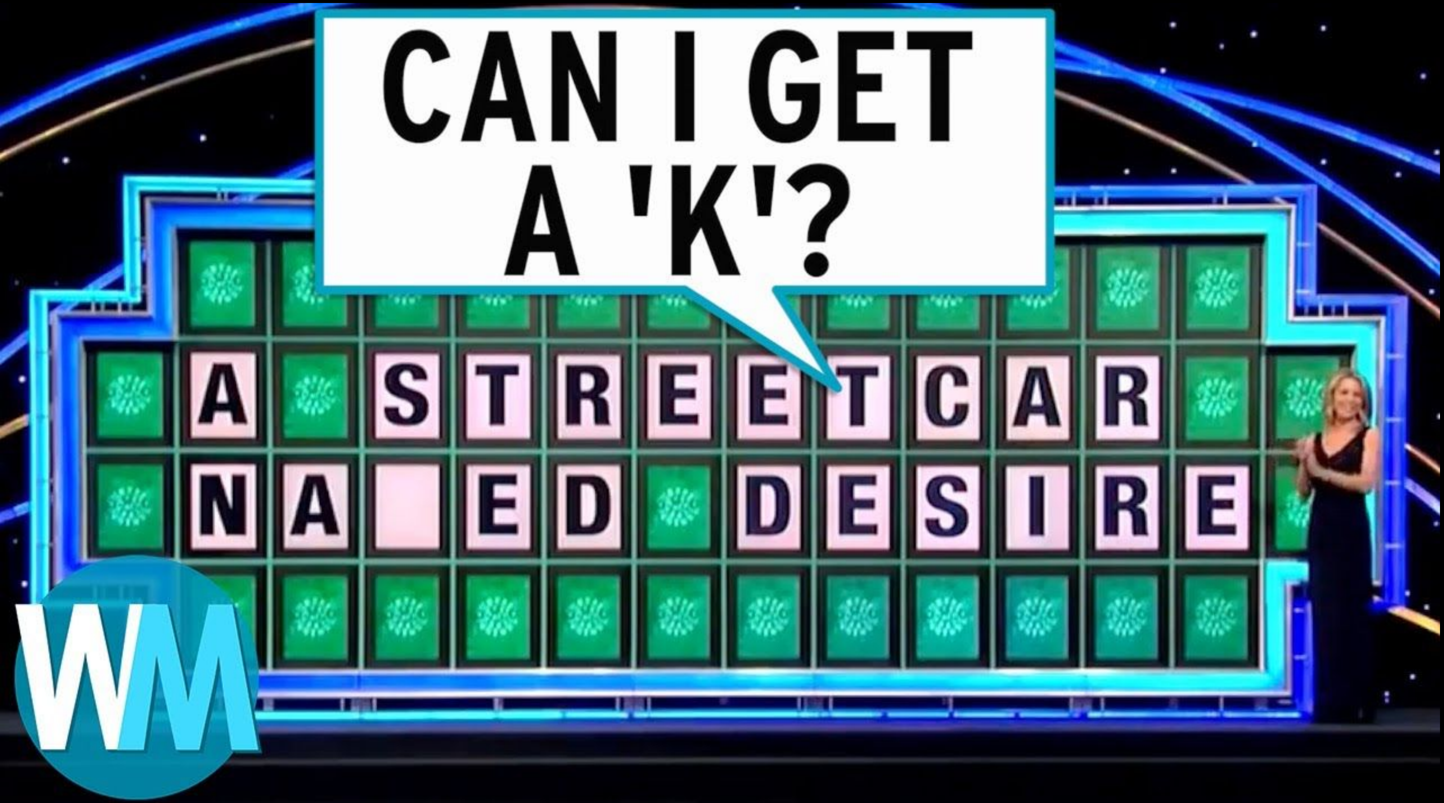
Bottom-Up Processing

- processing that begins with the sense receptors and works up to the brain’s integration of sensory information
- use individual parts to form the whole (Learning to read)

Top-Down Processing –

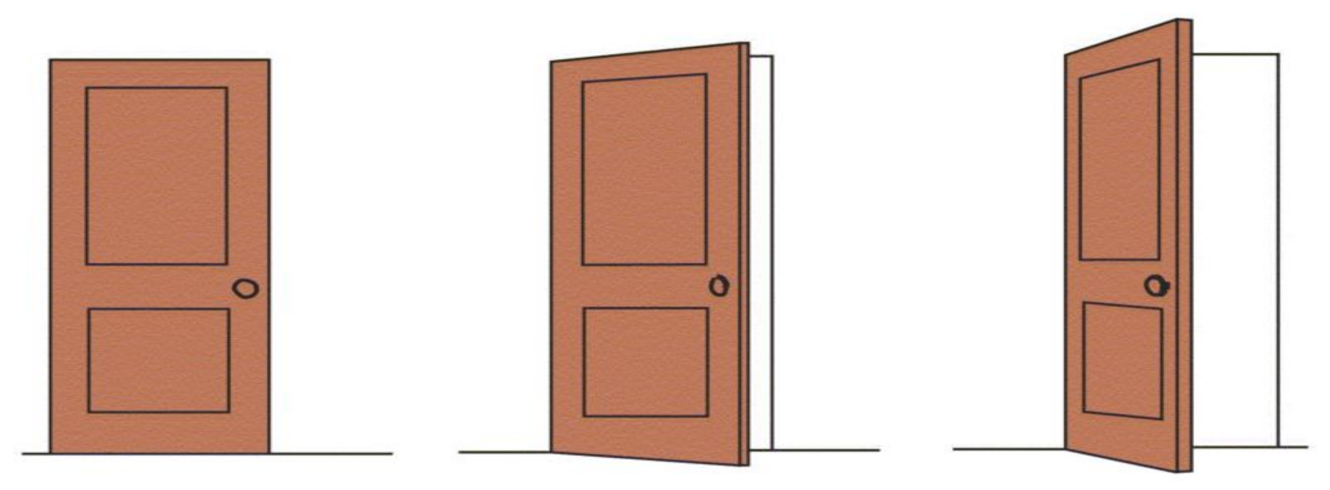
- information processing guided by higher-level mental processes
    - as when we construct perceptions drawing on our experience and expectations
    - How do we know top-down processing exists?
        - H _ _ L _W _ _ N

TRUE STORY!!


CAN I GET A 'K'?
A STREETCAR
NA ED DESIRE
WM

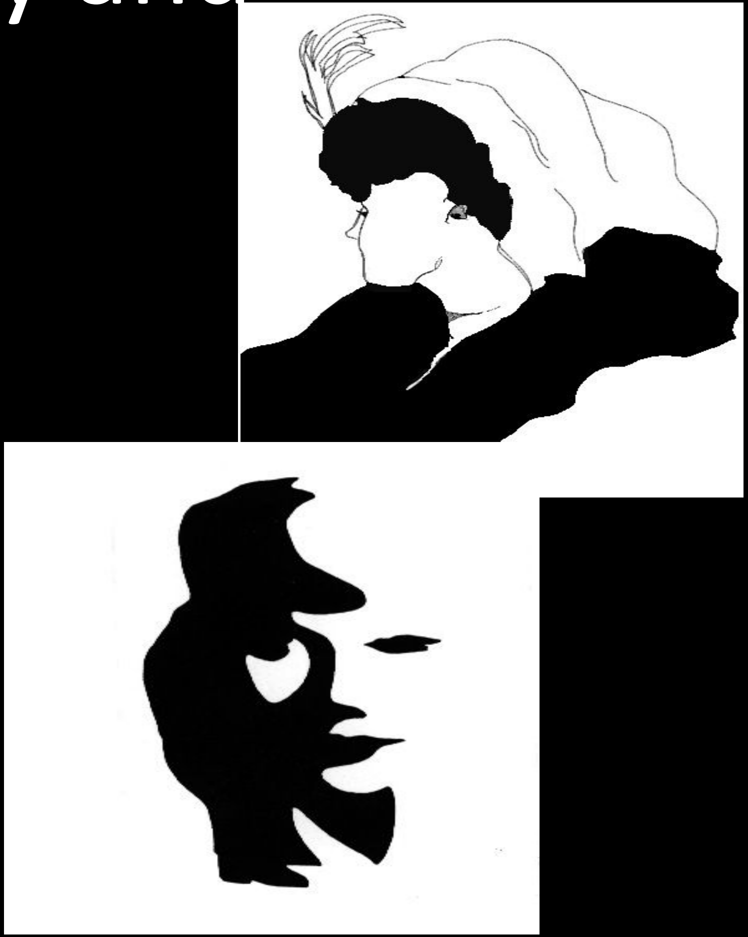
Perceptual Constancies

Ability to recognize the same object under different conditions, such as changes in illumination, distance, or location (we don’t have to reinterpret its properties)



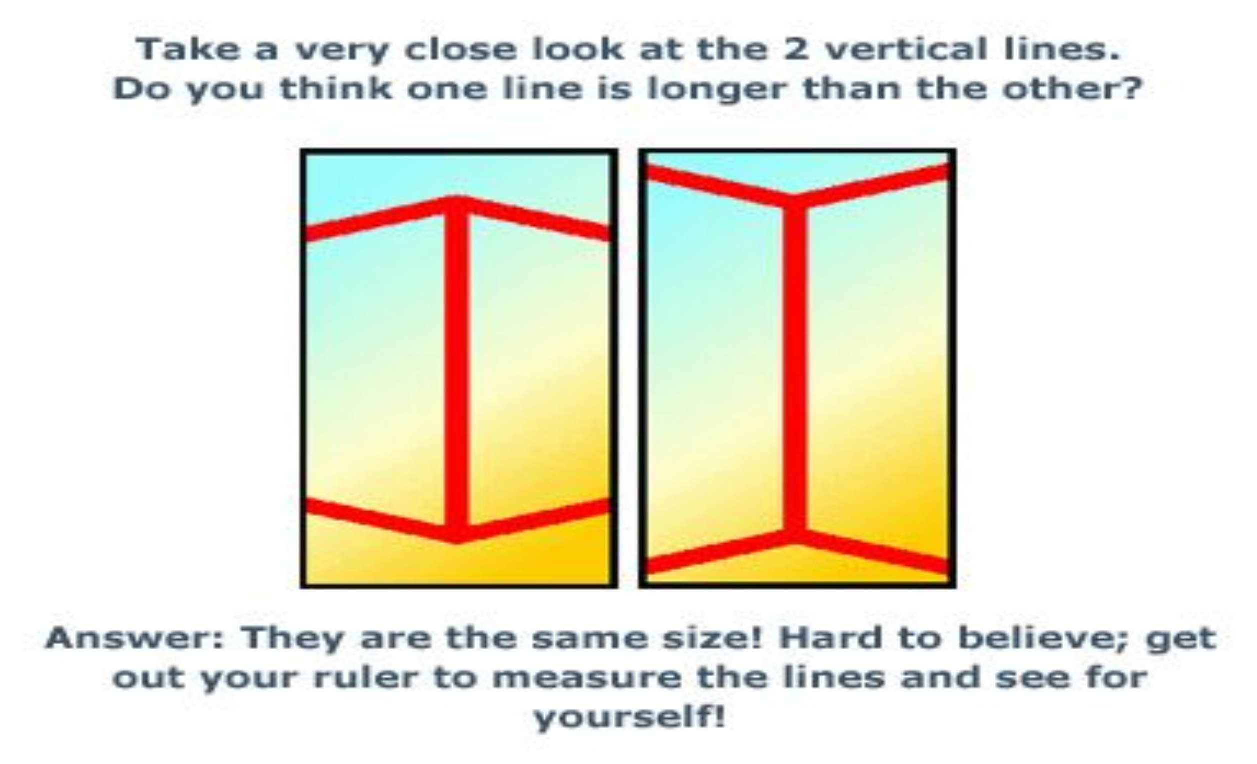
Perceptual Ambiguity and Distortion

- *Illusions* – misinterpretation of a stimulus pattern, shared by others in the same perceptual environment
- *Ambiguous figures* – Images that are capable of more than one interpretation; used to



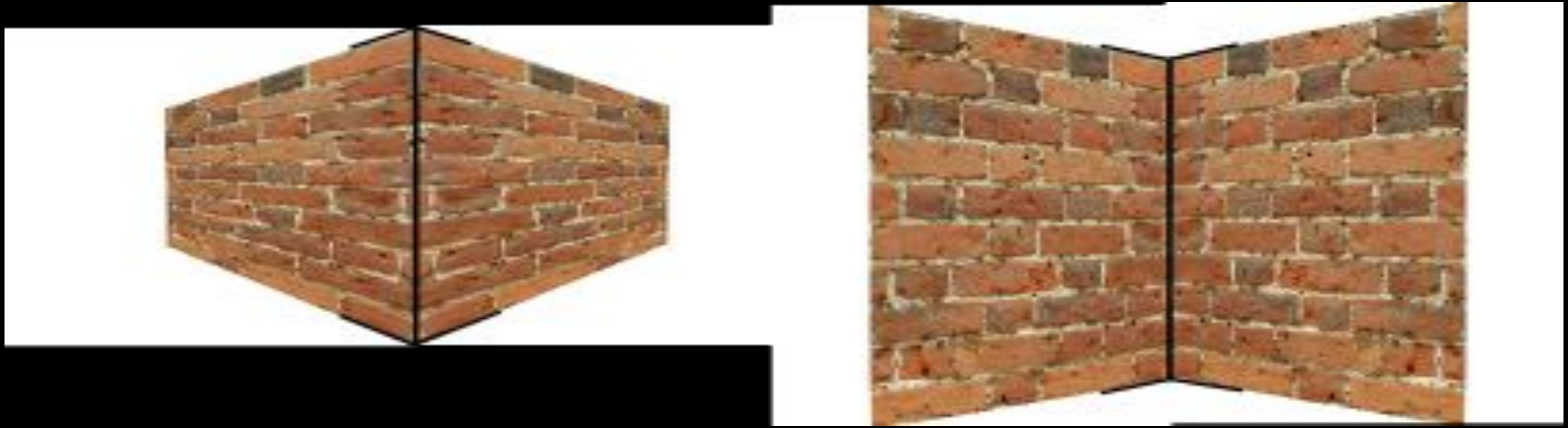
Muller Lyer Illusion

- We perceive the 2 lines to be at different distances so the brain “corrects” for their apparent length
- The one that appears closer is perceived as shorter



Take a very close look at the 2 vertical lines.
Do you think one line is longer than the other?

Answer: They are the same size! Hard to believe; get out your ruler to measure the lines and see for yourself!



Theoretical Explanations for Perception

Nature (Gestalt approach)

V.

Nurture (learning based inferences)

Gestalt images

The Gestalt Approach

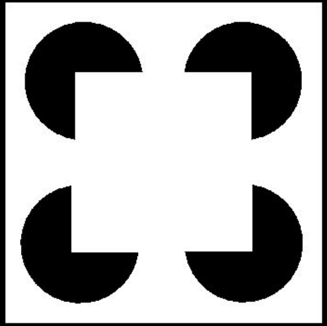
- *Gestalt psychology* – View that much of perception is shaped by innate factors built into the brain; how we organize stimulation into meaningful patterns
- Brain forms perceptual wholes from the sum of parts

Gestalt photography

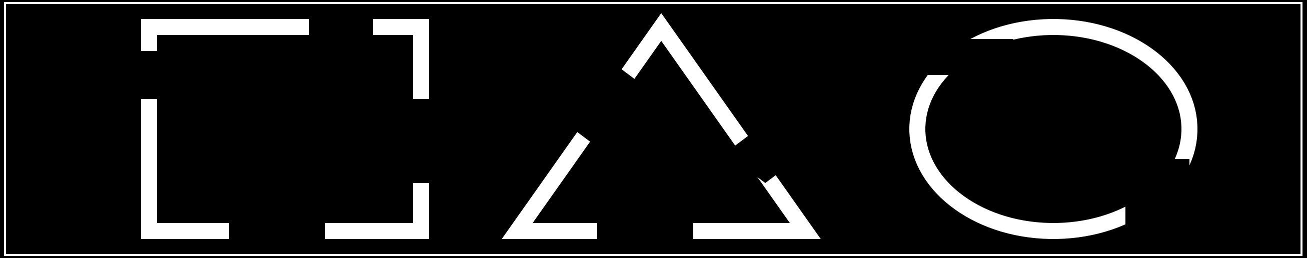
- *Figure* – Part of a pattern that commands attention (positive space)
- *Ground* – Part of a pattern that does not command attention; the background (negative space)

The Gestalt Approach

- *Subjective contours* – Boundaries that are perceived but do not appear in the stimulus pattern



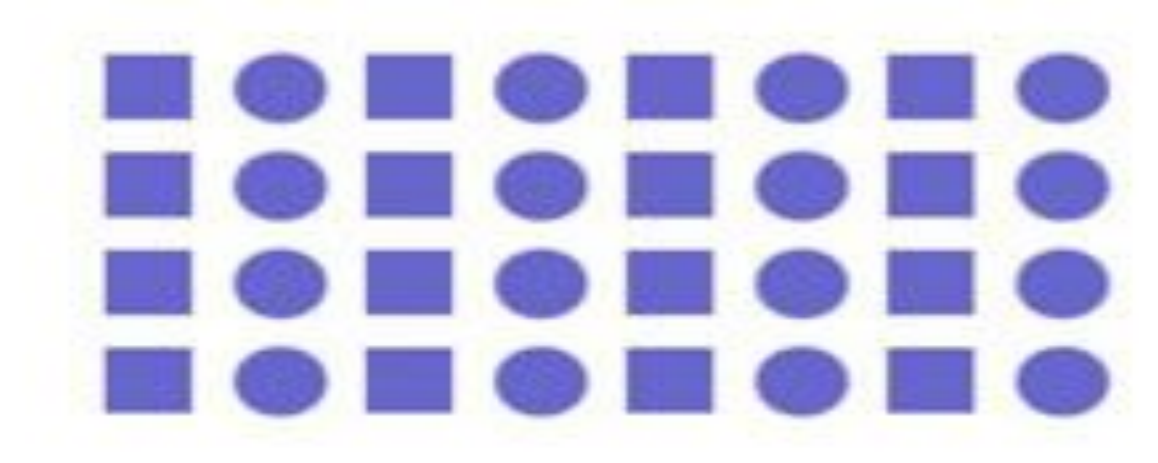
- *Closure* – Tendency to fill in gaps in figures and see incomplete figures as complete – *our blind spot???*



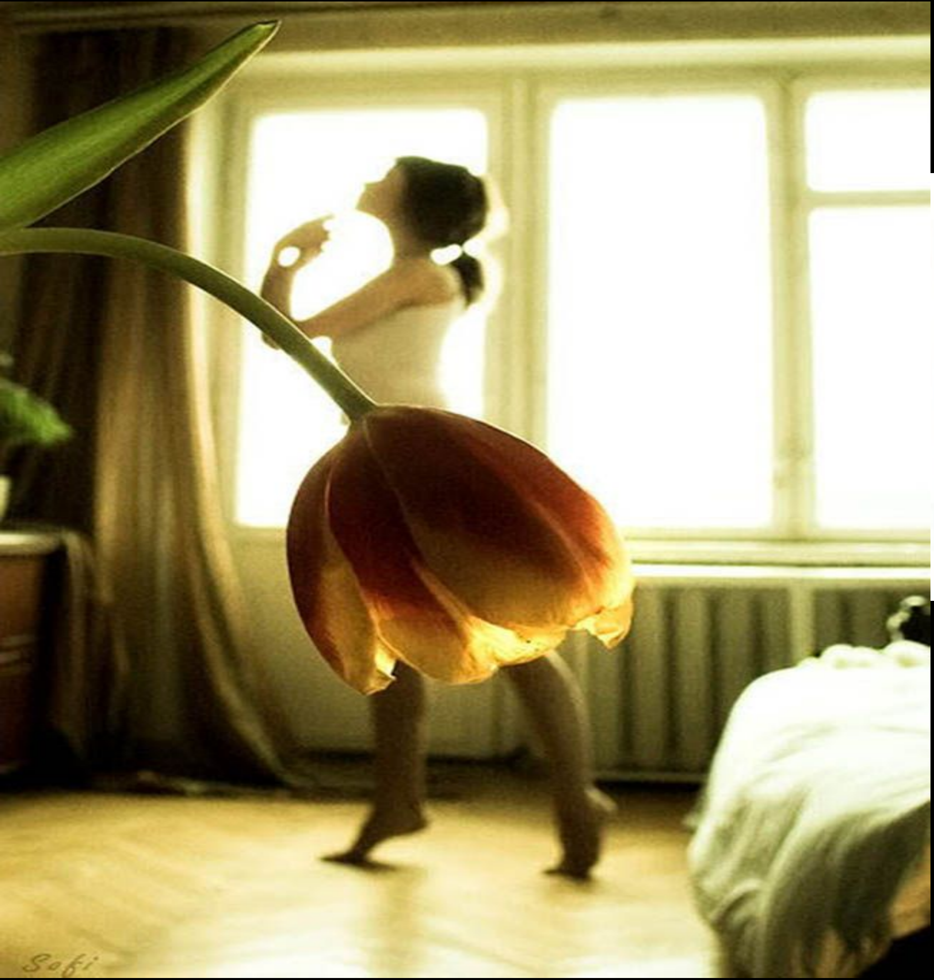
The Gestalt Laws of Perceptual Grouping

- Similarity
- Proximity
- Continuity
- Common fate
- Prägnanz

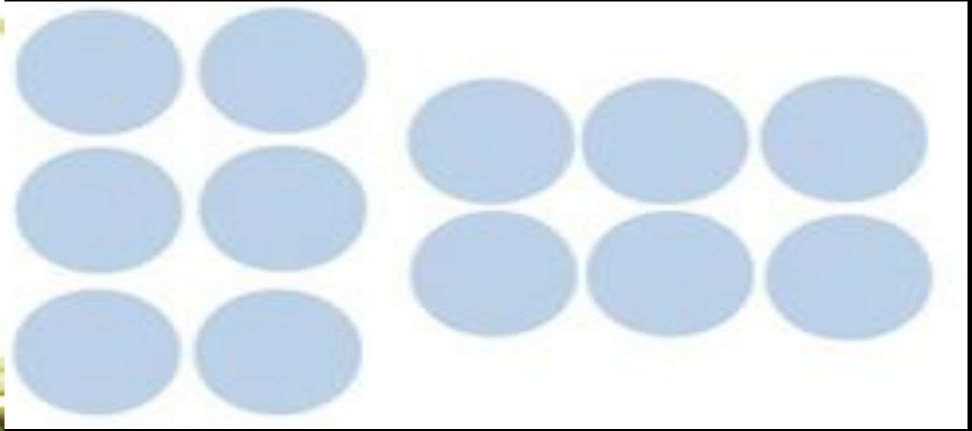
Similarity



Figures that are similar to each other seemed to be grouped together.

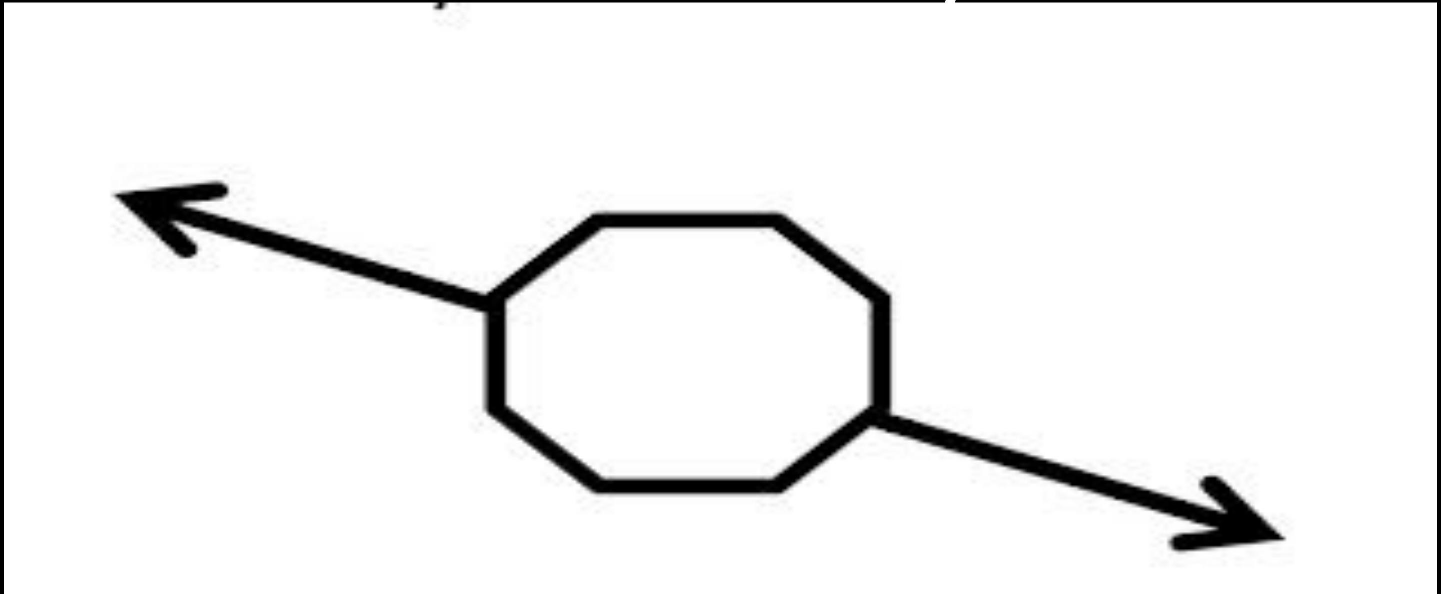


Proximity



Figures that are nearby tend to be grouped together.

Continuity

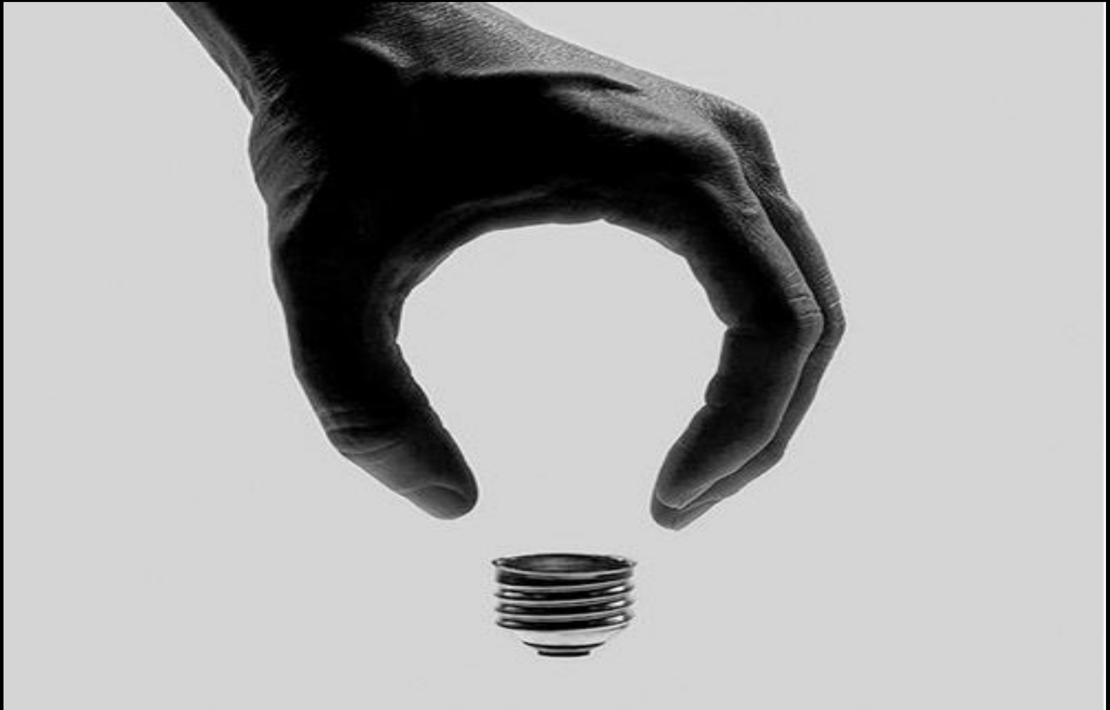


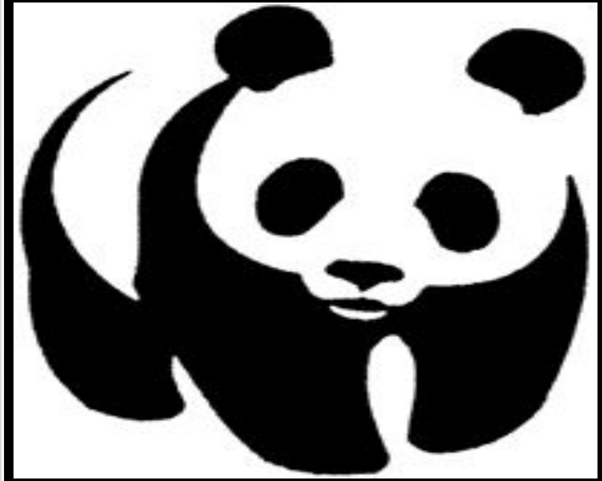
We tend to perceive smooth, continuous patterns rather than jumpy, disconnected ones.

Common Fate

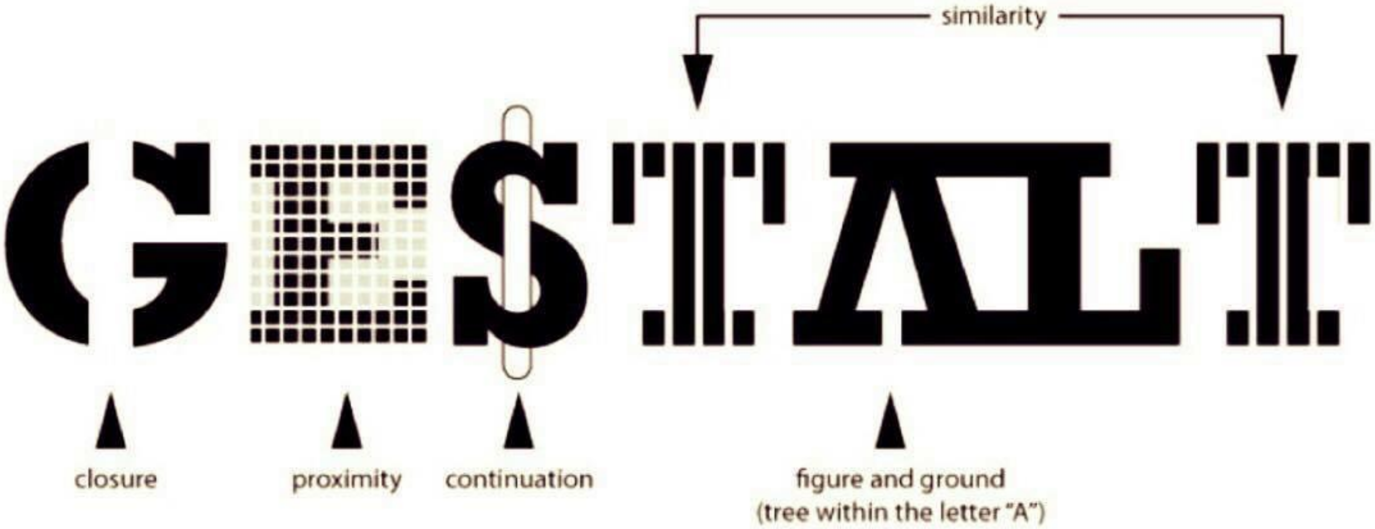
Two or more people moving in the same direction makes it seem as though they have a common destiny

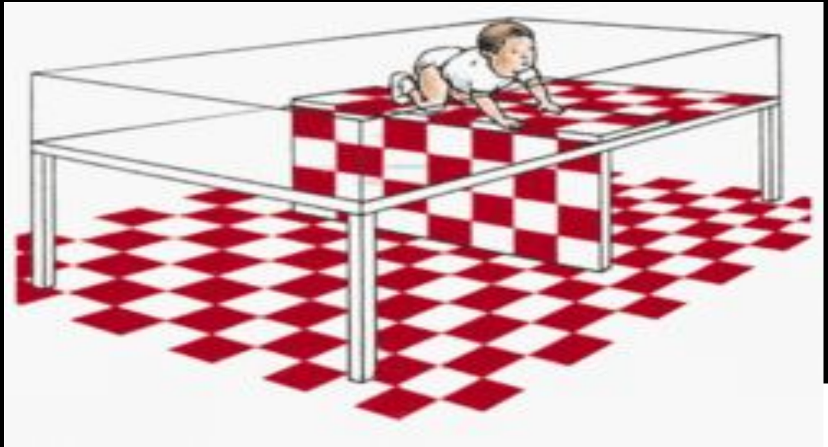
Closure





If a figure has gaps, we tend to complete it, filling in the gaps with our minds to create a whole.


similarity
GESTALT
closure
proximity
continuation
figure and ground
(tree within the letter "A")



Depth Perception

“The Visual Cliff” (Gibson & Walk)

Hesitant reactions occurred mostly in infants 6+ months – link between crawling and depth perception

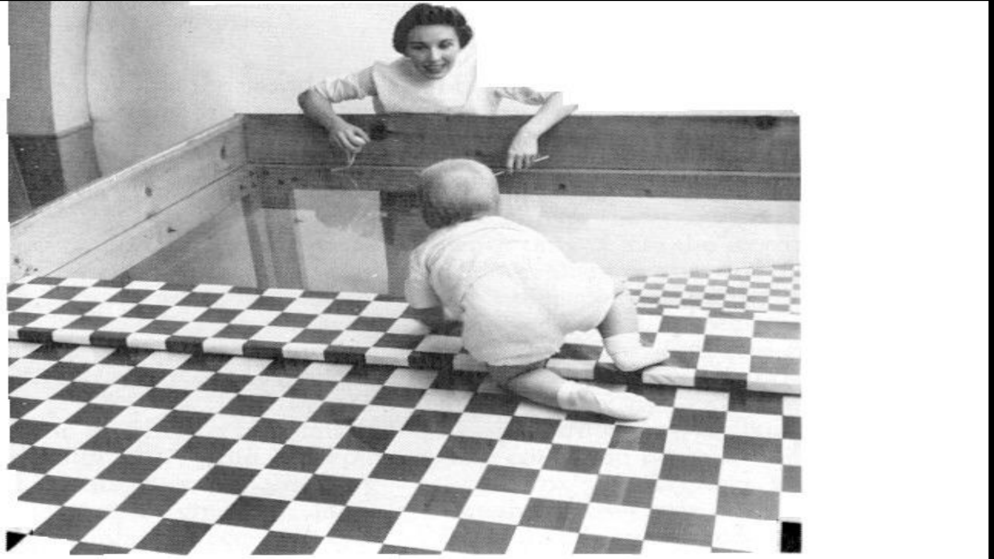
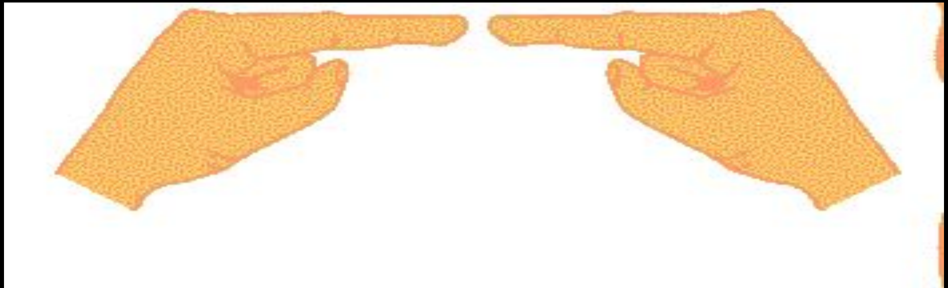
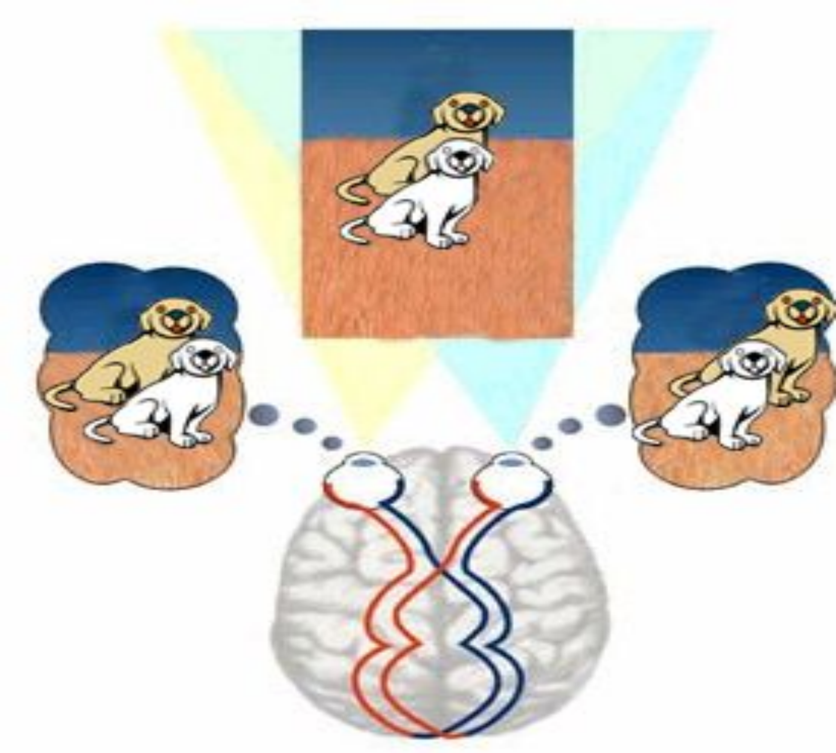


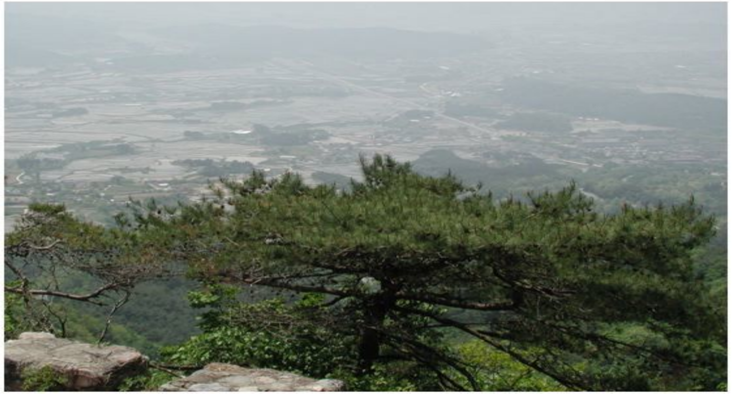
Figure 12.12 A mother calling to her child from across the deep side of the visual cliff. Despite the presence of the glass surface covering the cliff, the child refuses to cross over to the mother. (From Gibson & Walk, 1960. Photograph courtesy of William Vandivert.)

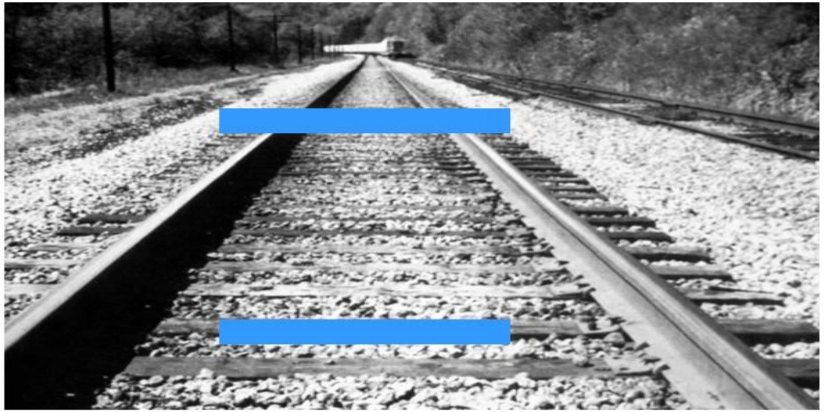


Binocular Cues



Retinal disparity – space between the eyes that allows the brain to determine the relative distance of different objects (creating depth perception); we see greater disparity when looking at nearby objects than we do when viewing distant objects


Aerial/Atmospheric Perspective

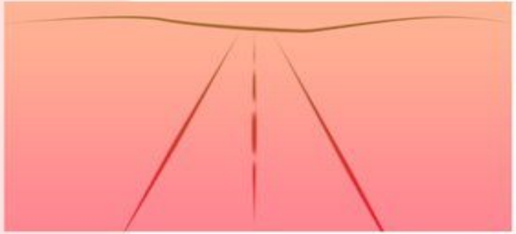

Linear perspective

Monocular Cues for depth perception: cues that can be perceived by one eye, to create an illusion of depth

linear perspective

involving parallel lines

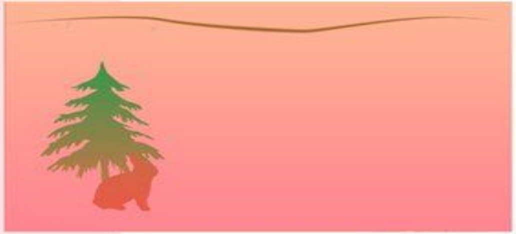
Linear perspective is a depth cue that utilizes the fact that lines converge in the distance. That is, **parallel lines** will get "closer together" or **narrower** as they appear **farther** from the viewer. A common illustration of this cue is that of a road or path.



interposition

involving overlapping objects

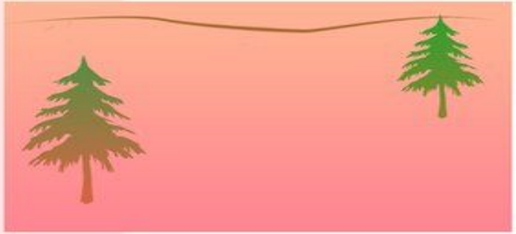
Interposition involves objects that appear to be coming **inbetween** the viewer and another object. If an object is interfering with, or **overlapping** the sight of the second object, it is percieved as **closer** than the second to the viewer.



height in plane

involving separate high and low in the visual field

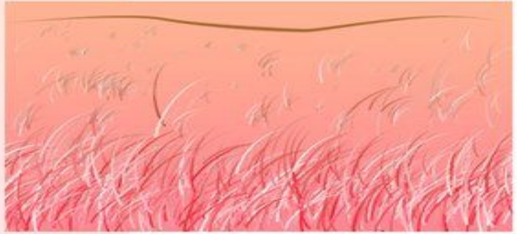
In a picture, objects that are **further** from the viewer appear **higher** in the visual field. Likewise, **lower** objects suggest that they are **closer** to the viewer. This concept is called **height in plane**.



texture gradients

involving coarse and fine textures

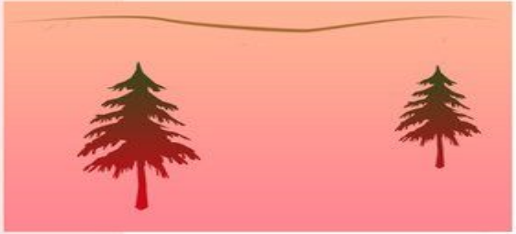
Details are too small to see when they are far away. This idea is known as **texture gradient**. Therefore, areas closer to the viewer will look **coarser**, and areas farther away will have a **finer** texture.



relative size

involving separate objects expected to be the same size

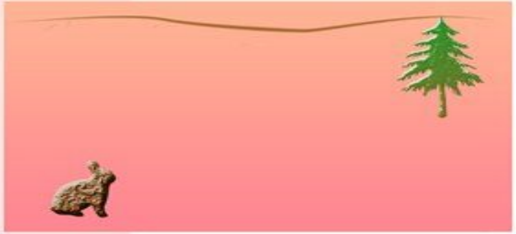
Closer objects appear **larger** than objects further away. Therefore, if two objects are expected to be the same size, then the larger object will appear closer. This is called **relative size**.



light and shadow

involving patterns of light and dark

Patterns of **light** and **dark** can create the illusion of a **three dimensional** figure. This concept can be useful in judging distance.



Learning-based inference –
View that perception is primarily shaped by learning, rather than innate factors

- How do we form an accurate percept?
  - *Context*
  - *Expectations*
  - *Perceptual set* – Readiness to detect a particular stimulus in a given context

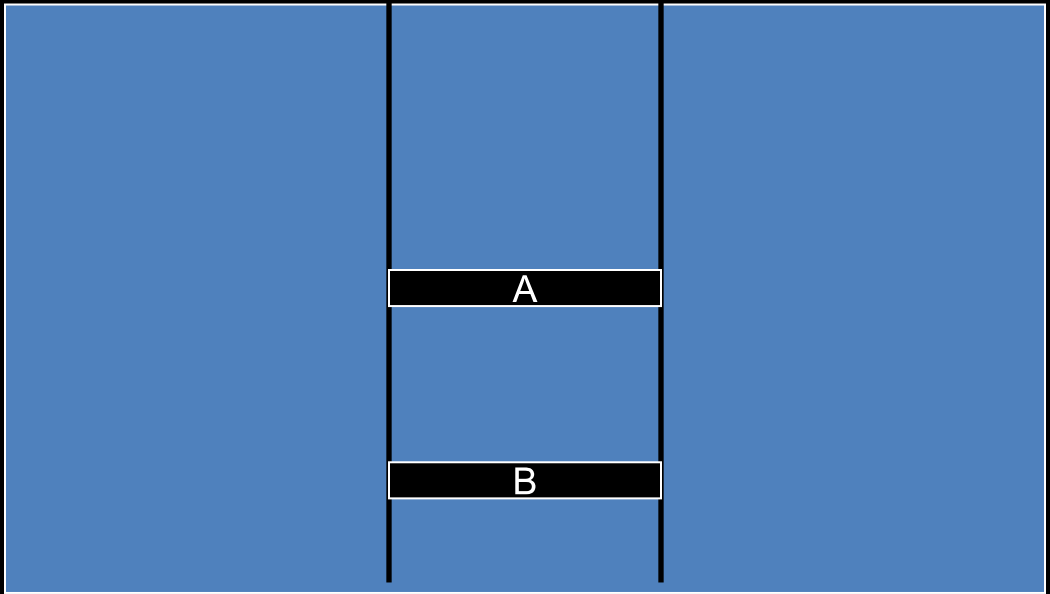
Perceptual Sets – a readiness to notice and respond to certain stimulus cues

FOX; OWL; SNAKE; TURKEY; SWAN; D?CK

BOB; RAY; DAVE; BILL; TOM; D?CK

Cultural Influences on Perception

The Ponzo Illusion



Culture

- We live in a place where parallel lines seem to converge in the distance in many scenarios – long buildings, runways, tunnels, etc. – we experience linear perspective
- Guam studies: less experience with this distance cue – roads are so winding that they rarely “converge” in the distance
  - These people are less susceptible to the Ponzo illusion!!
- Zulu – “circular” architecture – less susceptible to Muller Lyer

Chapter 5: States of Consciousness

Crash Course - Consciousness

Crash Course - Sleep

Crash Course - Altered States

Quizlet

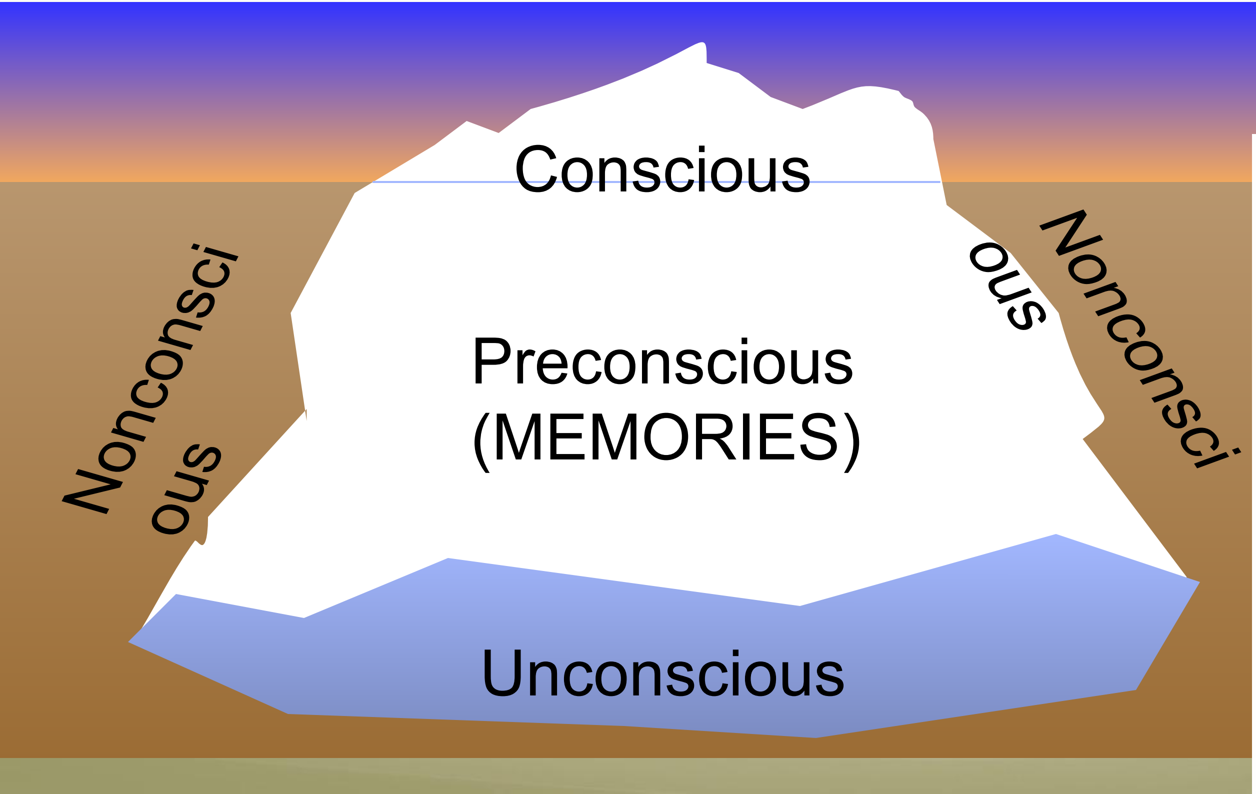
Multitasking

- Conscious processes – you CAN'T MULTITASK!; **serial processing**
- Nonconscious processes – walking, talking, breathing, chewing gum; **parallel processing**

MULTITASKING
Screwing up several things at once.

Levels of Consciousness

Most of our mind works BELOW our level of awareness



Conscious

Preconscious
(MEMORIES)

Unconscious

Nonconscious

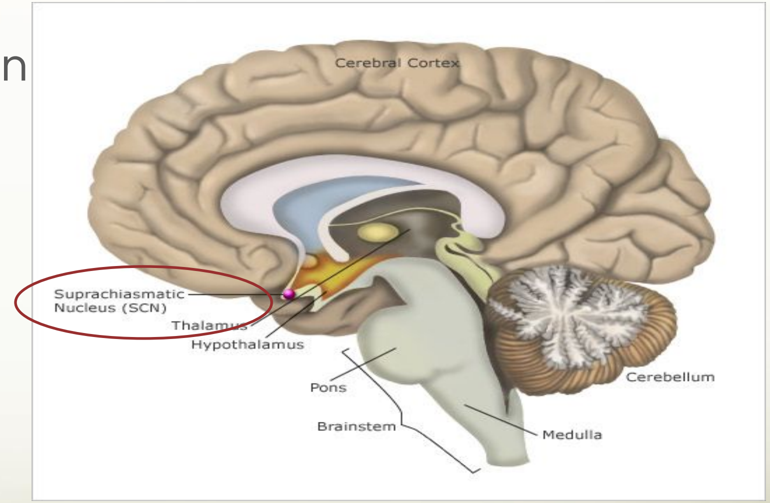
Nonconscious

Priming Example (Brain Games)

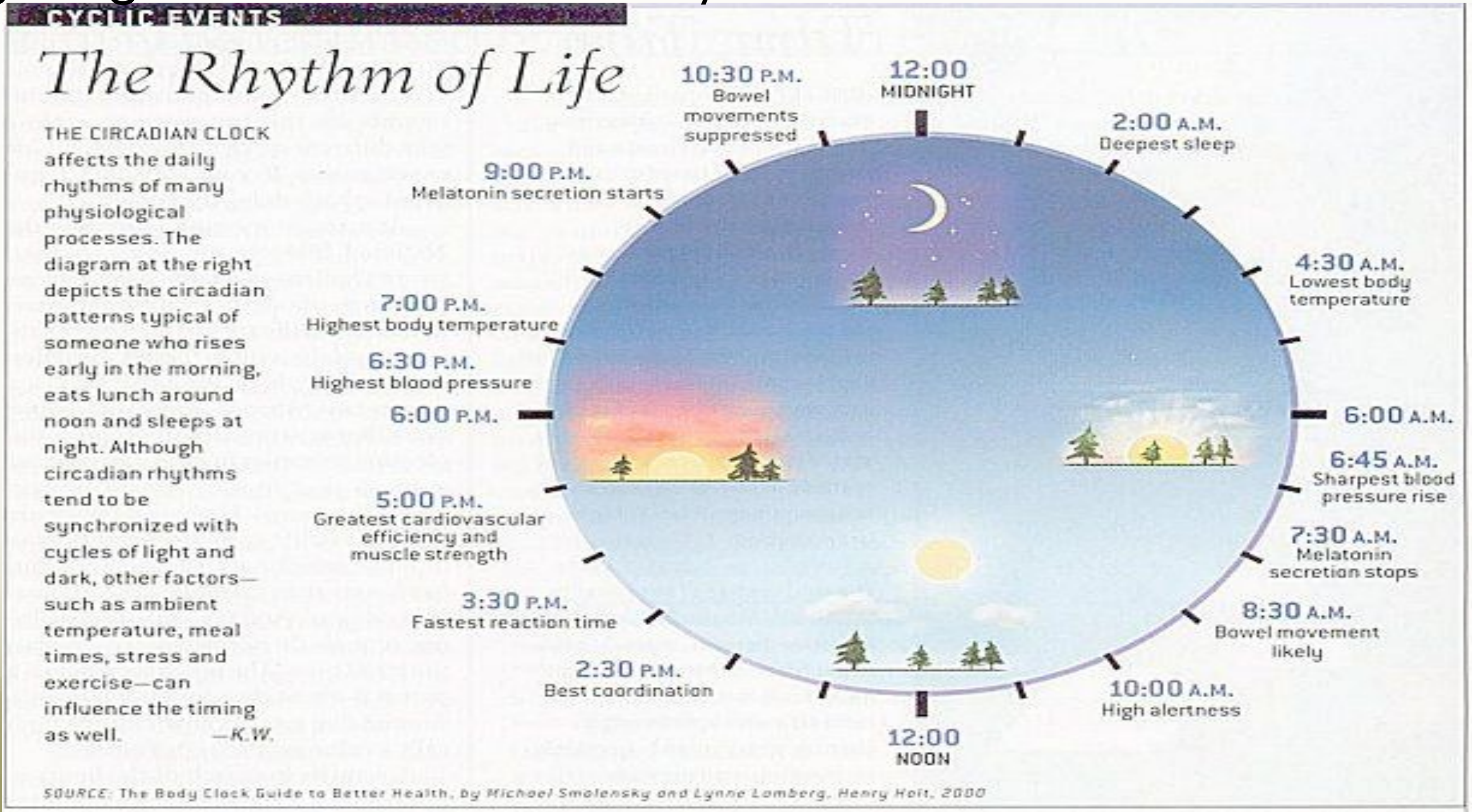
Priming: implicit memory effect in which exposure to a stimulus influences response to a later stimulus.

Sleep: The Mysterious Third of Our Lives

- *Circadian rhythms* – Psychological patterns that repeat approximately every 24 hours
  - "biological clock" (**suprachiasmatic nucleus** in the hypothalamus) controls metabolism, heart rate, body temperature, hormonal activity
  - Impacted by light/dark cycles of day and night - hypothalamus is just above the optic nerve
    - Shift work
    - Jet lag – your internal cycle is disrupted by your external environment


Cerebral Cortex
Suprachiasmatic Nucleus (SCN)
Thalamus
Hypothalamus
Pons
Brainstem
Cerebellum
Medulla

Sleep debt – chronic sleep deprivation – will result in us “fighting” with our circadian rhythms



CYCLIC EVENTS

The Rhythm of Life

THE CIRCADIAN CLOCK affects the daily rhythms of many physiological processes. The diagram at the right depicts the circadian patterns typical of someone who rises early in the morning, eats lunch around noon and sleeps at night. Although circadian rhythms tend to be synchronized with cycles of light and dark, other factors—such as ambient temperature, meal times, stress and exercise—can influence the timing as well. —K.W.

12:00 MIDNIGHT

2:00 A.M. Deepest sleep

4:30 A.M. Lowest body temperature

6:00 A.M.

6:45 A.M. Sharpest blood pressure rise

7:30 A.M. Melatonin secretion stops

8:30 A.M. Bowel movement likely

10:00 A.M. High alertness

12:00 NOON

2:30 P.M. Best coordination

3:30 P.M. Fastest reaction time

5:00 P.M. Greatest cardiovascular efficiency and muscle strength

6:00 P.M.

6:30 P.M. Highest blood pressure

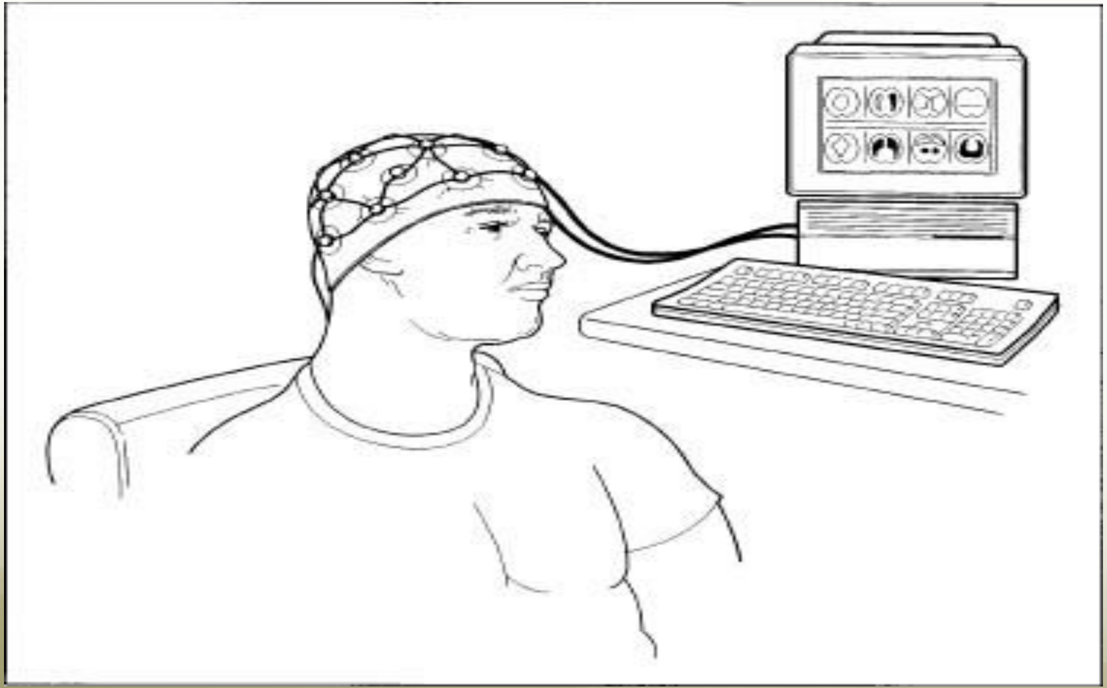
7:00 P.M. Highest body temperature

9:00 P.M. Melatonin secretion starts

10:30 P.M. Bowel movements suppressed

SOURCE: The Body Clock Guide to Better Health, by Michael Smolensky and Lynne Lamberg. Henry Holt, 2000

EEG (electroencephalograph)



- A device used to record the electrical activity of the brain
- EEG patterns typically take the form of waves, which may be measured according to both their frequency and height (amplitude)

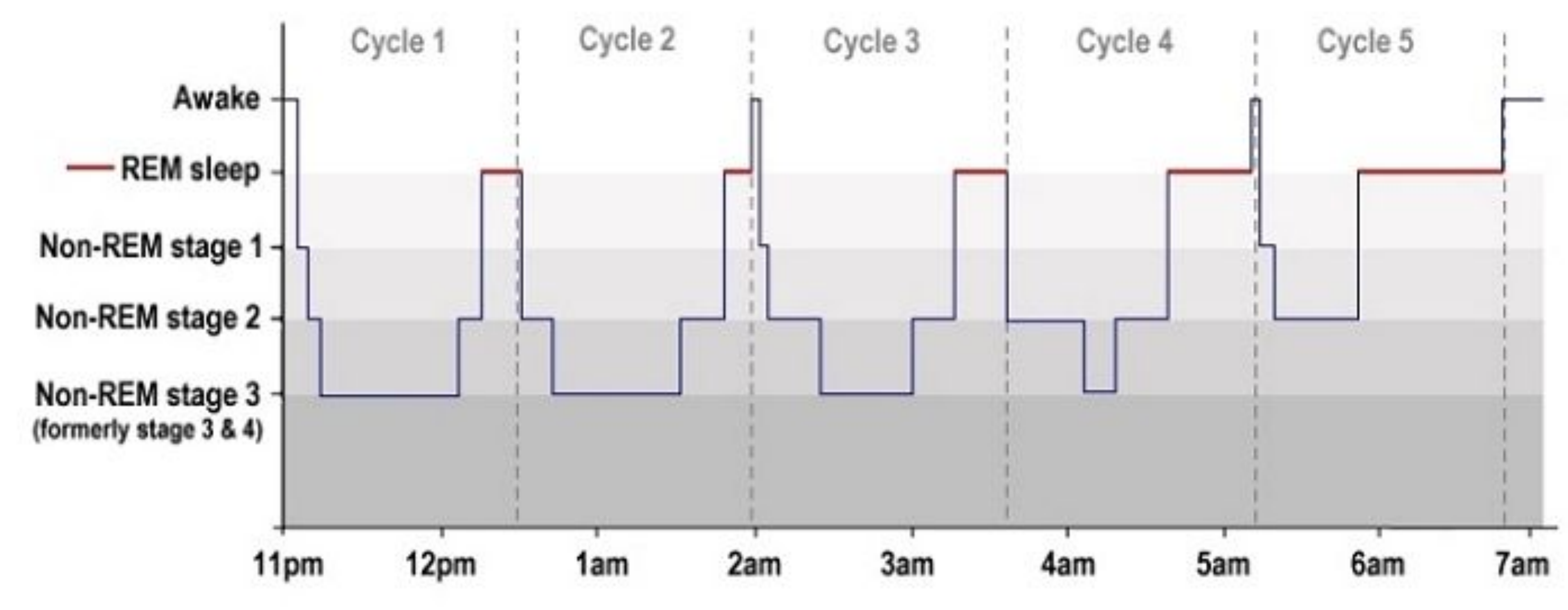
Stages of Sleep

- REM (rapid eye movement) sleep
  - 90 min into sleep cycle
  - 10 min., but lengthens each time – we get up to an hour by the last cycle
  - Brain waves similar to wakefulness
  - Vivid dreams/voluntary muscle paralysis – PARADOXICAL sleep
  - Infants – 50% of sleep in REM; adults – 20%

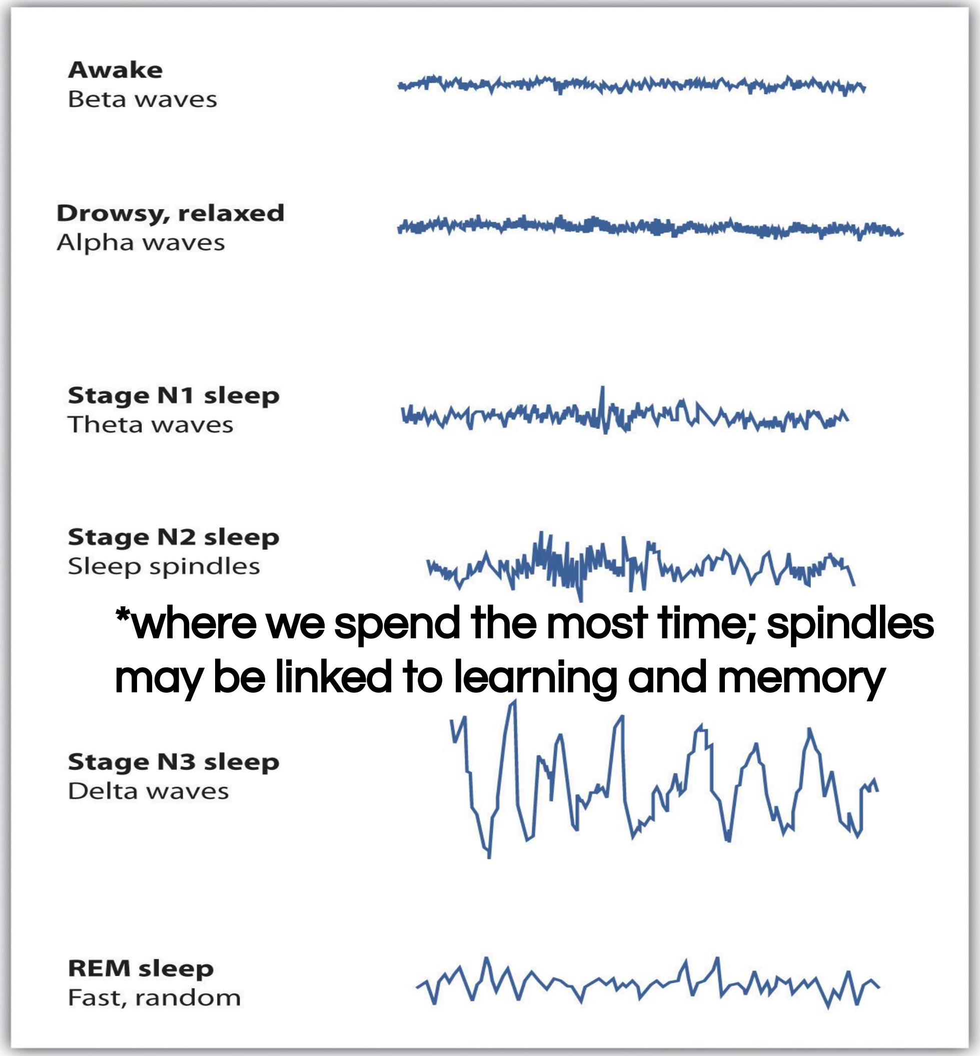
- Non-REM (NREM) sleep
  - Stages 1-4, 5-15 min.; body repairs, regenerates tissue, strengthens immunity; deep sleep happens

- REM-sleep deprivation leads to REM rebound – sleep deprived go right to REM sleep

The Sleep Cycle



*We wake more tired/groggy during stage 3/4 (deep sleep); sleep in 90 min. – 2 hr increments

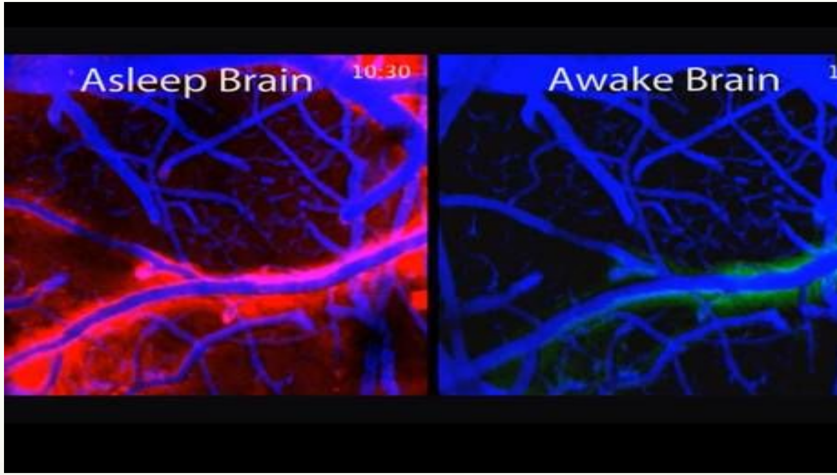


*where we spend the most time; spindles may be linked to learning and memory

- deeper stages of sleep = large, slow, irregular brain waves; bursts of high-amplitude waves called "sleep spindles"
- REM sleep (vivid dreaming) = faster brain-wave pattern like in waking state

The Function of Sleep

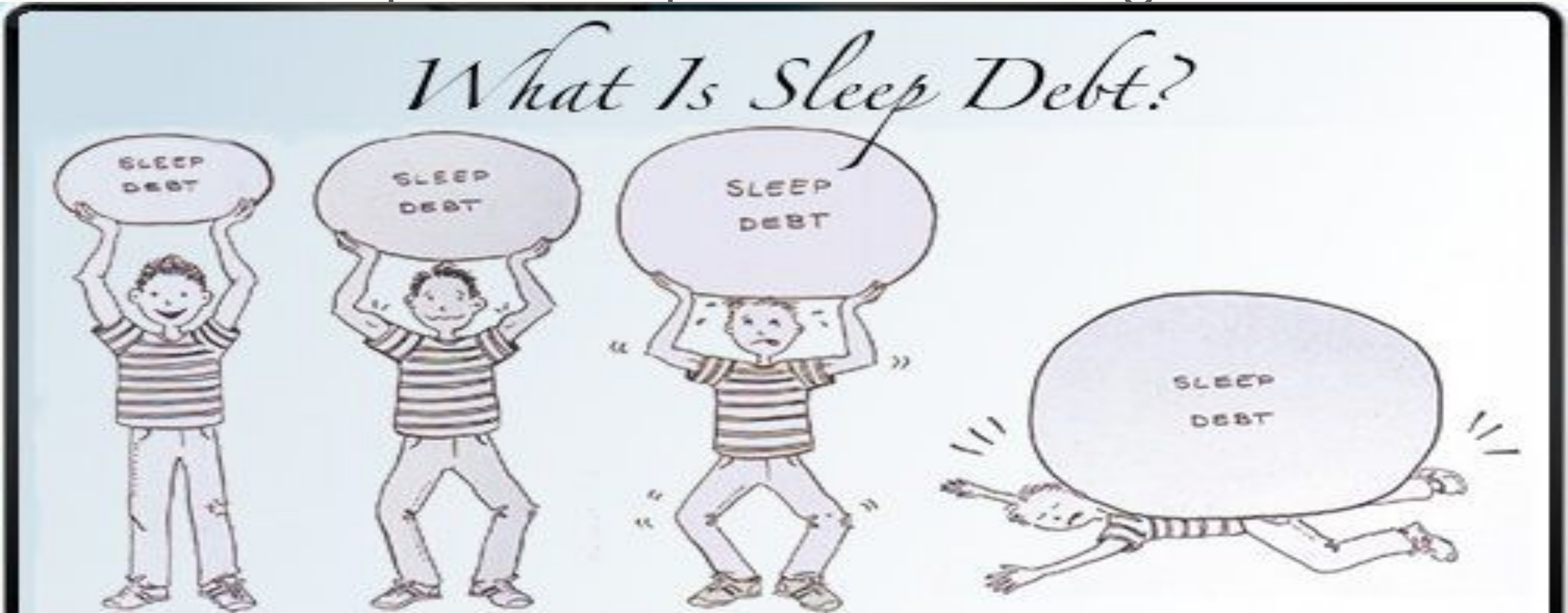
- Possible functions of sleep include:
  - To conserve energy
  - To restore the body (neurotransmitters, neuron sensitivity)
  - To build “neural nets” and flush out useless information from the brain
  - To flush out toxins??



Too little REM can impair functioning during the day – your brain NEEDS REM sleep to process the previous day’s events

Sleep Debt vs. The Circadian Clock

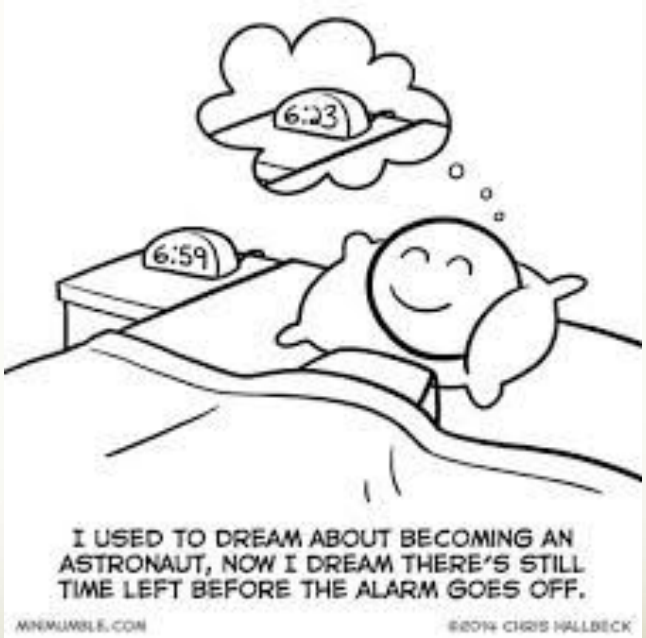
- *Sleep debt* –
  Deficiency caused by not getting the amount of sleep that one requires for optimal functioning


What Is Sleep Debt?
SLEEP DEBT
SLEEP DEBT
SLEEP DEBT
SLEEP DEBT

Dreams as Meaningful Events

- Freud believed dreams served the following two functions:
  - To guard sleep
  - To serve as sources of wish fulfillment
  - Latent (underlying) v. manifest (content of dreams)

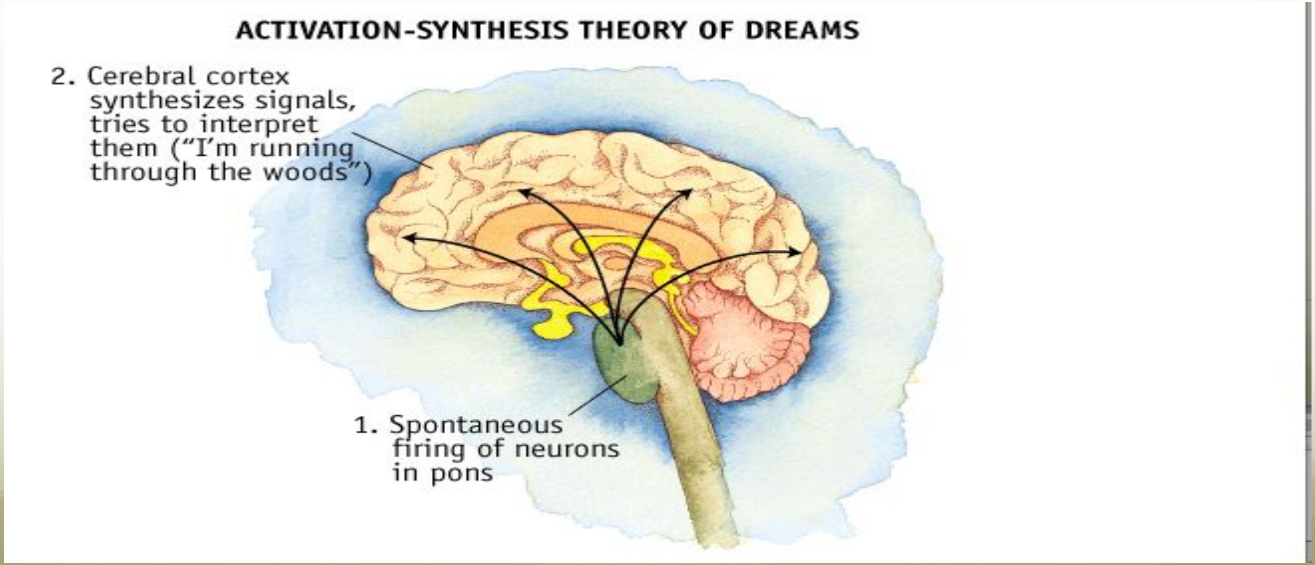
- Dream content
  - Varies by culture, gender, and age
  - Frequently connects with recent experience
  - May help us form memories


6:23
6:59
I USED TO DREAM ABOUT BECOMING AN ASTRONAUT, NOW I DREAM THERE'S STILL TIME LEFT BEFORE THE ALARM GOES OFF.

MINIMUMBLE.COM ©2014 CHRIS HALLBECK

Dreams as Random Brain Activity

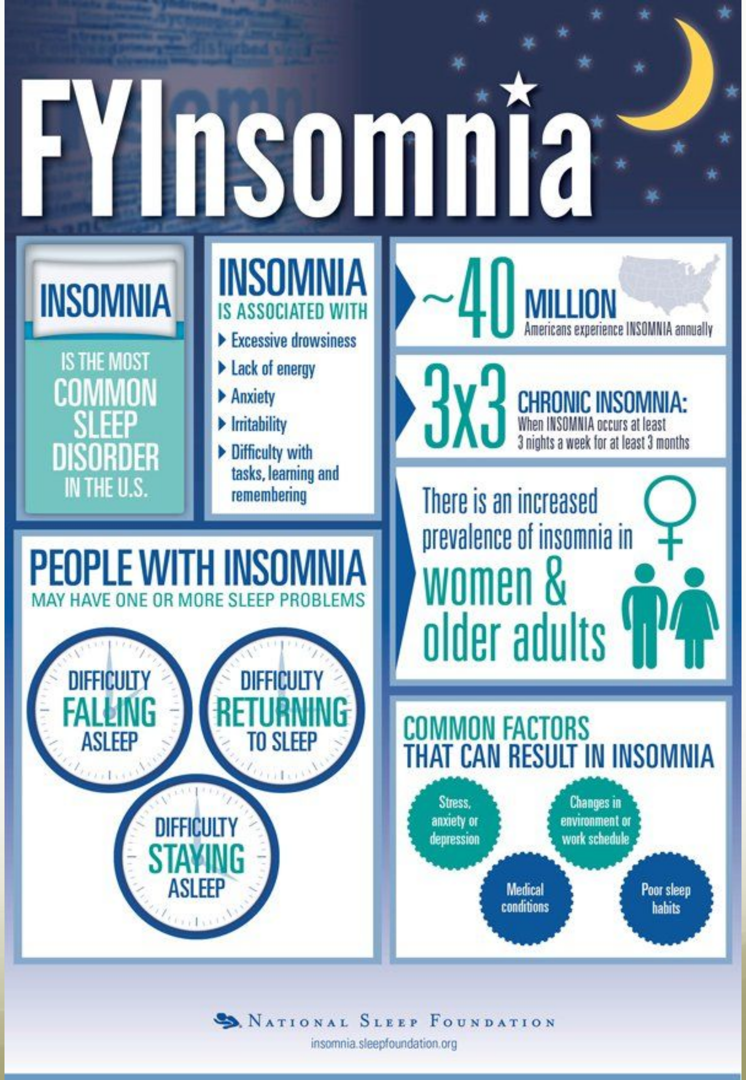
- *Activation-synthesis theory* – biological explanation for dreams; neural firing in "pons" in brainstem causes the brain to "synthesize" or make sense of activity


ACTIVATION-SYNTHESIS THEORY OF DREAMS
2. Cerebral cortex synthesizes signals, tries to interpret them ("I'm running through the woods")
1. Spontaneous firing of neurons in pons

Sleep Disorders

- *Insomnia* –
  Involves insufficient sleep, the inability to fall asleep quickly, frequent arousals, or early awakenings

- *Sleep apnea* –
  Respiratory disorder in which person intermittently stops breathing while asleep



FYInsomnia

INSOMNIA
IS THE MOST
COMMON
SLEEP
DISORDER
IN THE U.S.

INSOMNIA
IS ASSOCIATED WITH
- Excessive drowsiness
- Lack of energy
- Anxiety
- Irritability
- Difficulty with tasks, learning and remembering

~40 MILLION
Americans experience INSOMNIA annually

3x3 CHRONIC INSOMNIA:
When INSOMNIA occurs at least 3 nights a week for at least 3 months

There is an increased prevalence of insomnia in women & older adults

PEOPLE WITH INSOMNIA
MAY HAVE ONE OR MORE SLEEP PROBLEMS

DIFFICULTY FALLING ASLEEP

DIFFICULTY RETURNING TO SLEEP

DIFFICULTY STAYING ASLEEP

COMMON FACTORS THAT CAN RESULT IN INSOMNIA

Stress, anxiety or depression

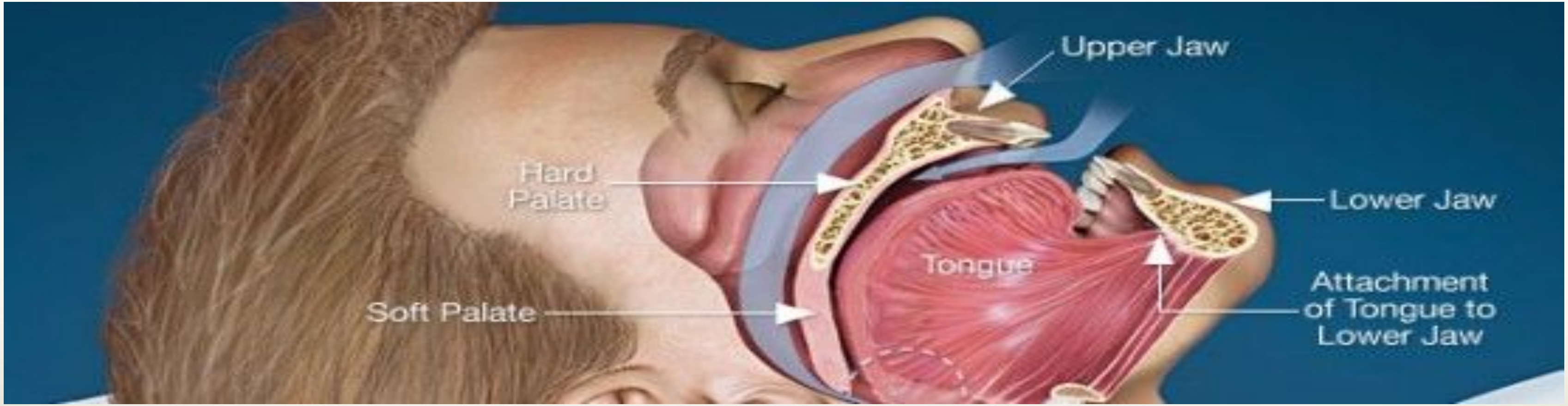
Changes in environment or work schedule

Medical conditions

Poor sleep habits

NATIONAL SLEEP FOUNDATION
insomnia.sleepfoundation.org

** the throat muscles and tongue relax more than normal, blocking the airway – blood oxygen levels drop, distress hormones are released and person awakes to breathe normally

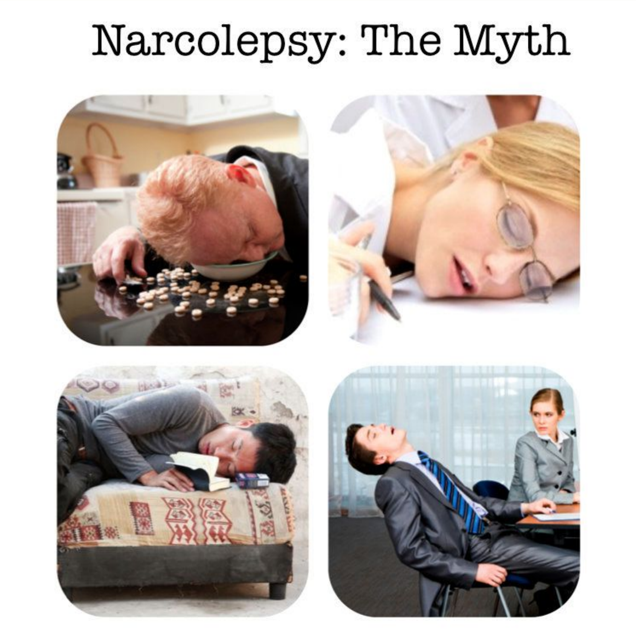

Upper Jaw
Hard Palate
Lower Jaw
Tongue
Attachment of Tongue to Lower Jaw
Soft Palate

Sufferers can stop breathing for up to a minute several hundred times a night!

Narcolepsy & Cataplexy

Narcolepsy - Involves sudden REM sleep attacks

- Cataplexy – Sudden loss of muscle control; waking form of sleep paralysis; often triggered by extreme emotion such as laughing, surprise, anger



Night Terrors

The screaming of a child in deep sleep, who, once awakened, has no memory of what mental events might have caused the fear

- NOT nightmares – theses occur during REM

A GOOD NIGHT'S SLEEP FOR ALL
put night terrors to rest
wee LOVE

Hypnosis

- *Hypnosis* – Induced state of altered awareness, characterized by heightened suggestibility and deep relaxation

- *Hypnotizability* – Degree to which an individual is responsive to hypnotic suggestions
  - 40% - low suggestibility
  - 20% - high suggestibility (big imaginations)

Hypnosis as an Altered State

- Experts disagree about whether hypnosis involves
  - A distinct state of consciousness?
  - Heightened motivation?
  - Social processes such as role playing?
  - A dissociated state (Hilgard's "hidden observer" view)?

Hilgard's "Hidden Observer"

- a person undergoing hypnosis can still observe his or her own pain without consciously experiencing any suffering; hypnosis is a dissociated state (consciousness splits); pain shifts to hidden observer and away from normal consciousness

- Example from Ernest Hilgard:
  - A blind student was hypnotized and told that he would become deaf. he failed to react to any form of noise, even large sounds next to his ear or respond to any questions he was asked
  - Hypnotist quietly said to the student, "Perhaps there is some part of you that is hearing my voice and processing the information. If there is, I should like the index finger of your right hand to rise as a sign that this is the case". The finger rose. At this, the student requested that he be brought out of the hypnotically-induced period of deafness. On being "awakened," the student said that he had requested to come out of the trance state because "I felt my finger rise in a way that was not a spontaneous twitch, so you must have done something to make it rise, and I want to know what you did"

Practical Uses for Hypnosis

- Hypnosis can have practical uses for
  - Researchers
  - Psychological treatment – relaxation for stress relief; smoking cessation
  - Medical and dental treatment
    - Hypnotic analgesia – Diminished sensitivity to pain while under hypnosis

Psychoactive Drug States

- *Psychoactive drugs* –
  Chemicals that affect mental processes and behavior by their effects on the nervous system

Hallucinogens

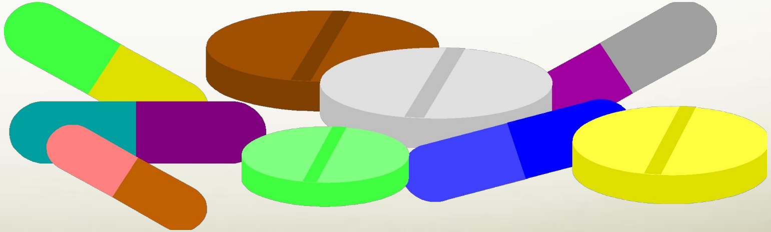
Opiates

Depressants

Stimulants

Hallucinogens

- Alter perceptions of the external environment and inner awareness
- (also called *psychedelics*)
  - Mescaline
  - LSD
  - PCP
  - Cannabis



Opiates

- Highly addictive; produce a sense of well-being and have strong pain-relieving properties
  - Morphine
  - Codeine
  - Heroin
  - Methadone

Depressants

- Slow down mental and physical activity by inhibiting transmission of nerve impulses in the central nervous system
  - Barbiturates
  - Benzodiazepines (e.g. Valium)
  - Alcohol

Stimulants

- Arouse the central nervous system, speeding up mental and physical responses
  - Cocaine
  - Amphetamines
  - Methamphetamine
  - MDMA (ecstasy)
  - Caffeine
  - Nicotine

Chapter 6: Learning

[Crash Course - Classical & Operant Conditioning]

[Crash Course - The Bobo Beatdown]

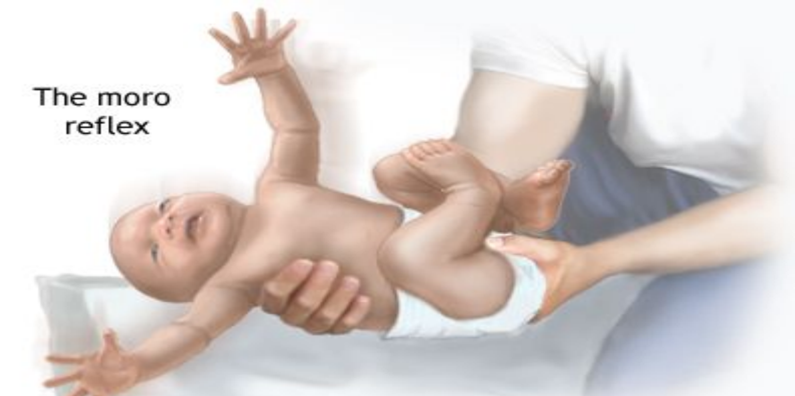
[Quizlet]

Learning

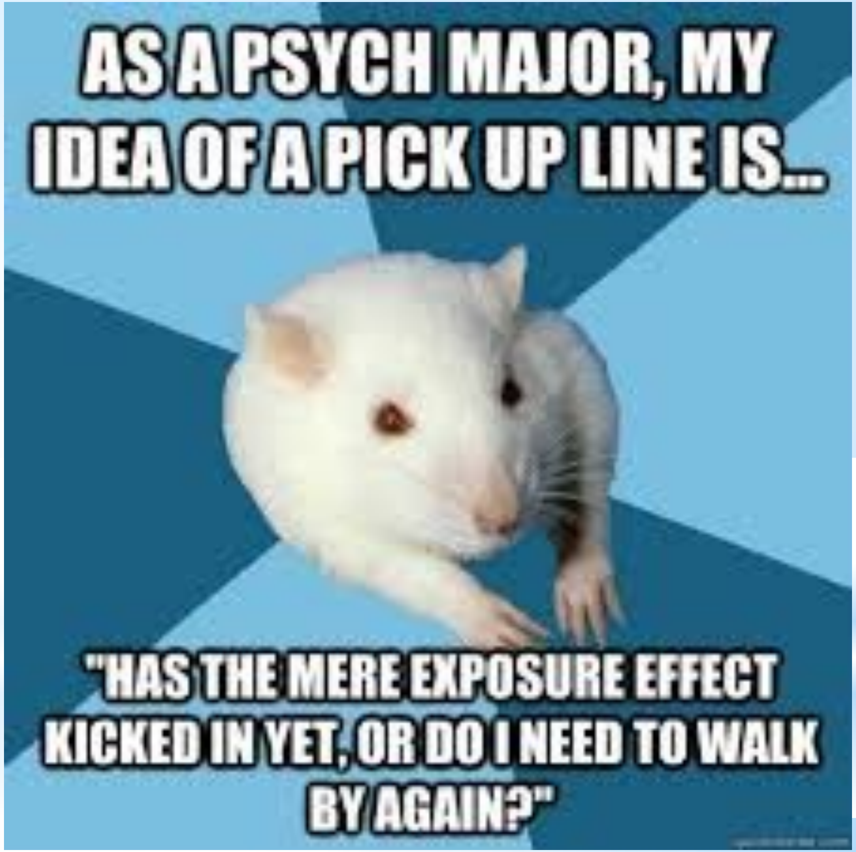
- A process through which experience produces lasting change in behavior or mental processes
- Instinctive behavior (species typical behavior – fixed action pattern) – ie. Animal mating rituals, nursing newborns

© Allina Health System

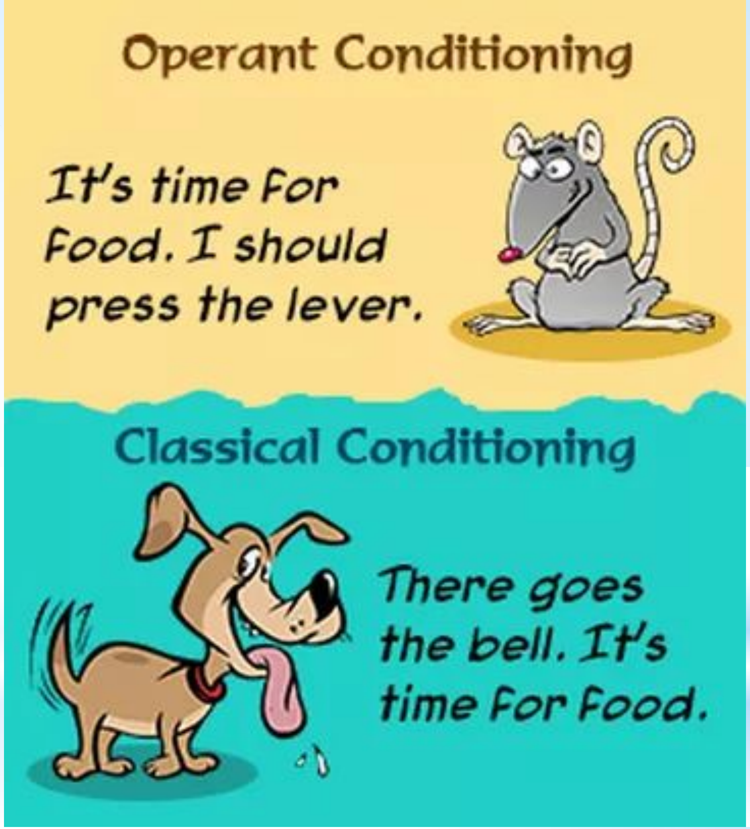
Rooting reflex


The moro reflex

- *Mere exposure effect* – Learned preference for stimuli to which we have been previously exposed
  - It’s easier to process familiar info. And this causes a feeling of pleasure


AS A PSYCH MAJOR, MY IDEA OF A PICK UP LINE IS...
"HAS THE MERE EXPOSURE EFFECT KICKED IN YET, OR DO I NEED TO WALK BY AGAIN?"

Behavioral learning – Forms of learning that can be described in terms of stimuli and responses (e.g. classical and operant conditioning)

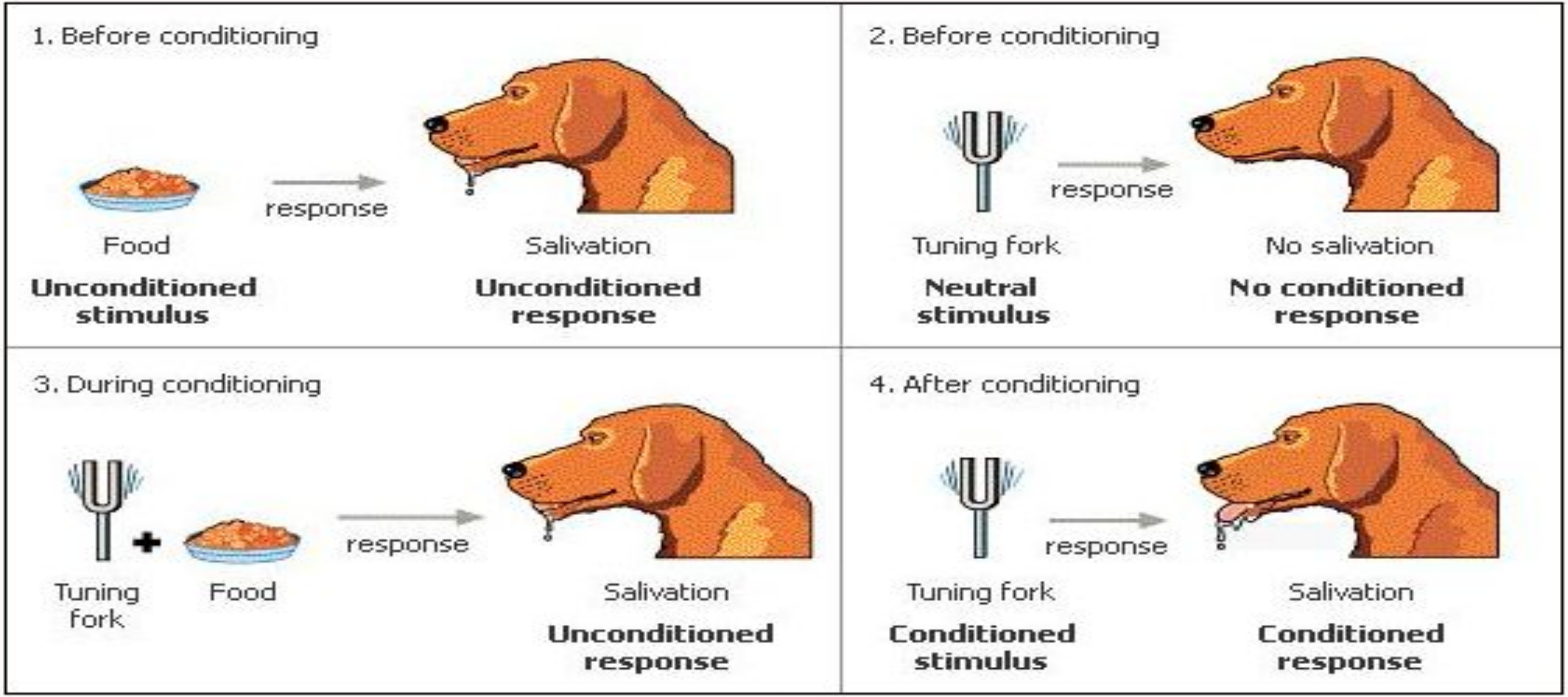

Operant Conditioning
It's time for food. I should press the lever.
Classical Conditioning
There goes the bell. It's time for food.

*Classical Conditioning

- Learning a new behavior through association
- Two stimuli are linked together to produce a new response in a person or animal
- 3 stages:
  1. Before conditioning (UCS & UCR)
  2. During conditioning (acquisition through trials – association is formed and strengthened)
  3. After conditioning (once neutral stimulus becomes CS – associate with UCS to produce CR)

The Essentials of Classical Conditioning

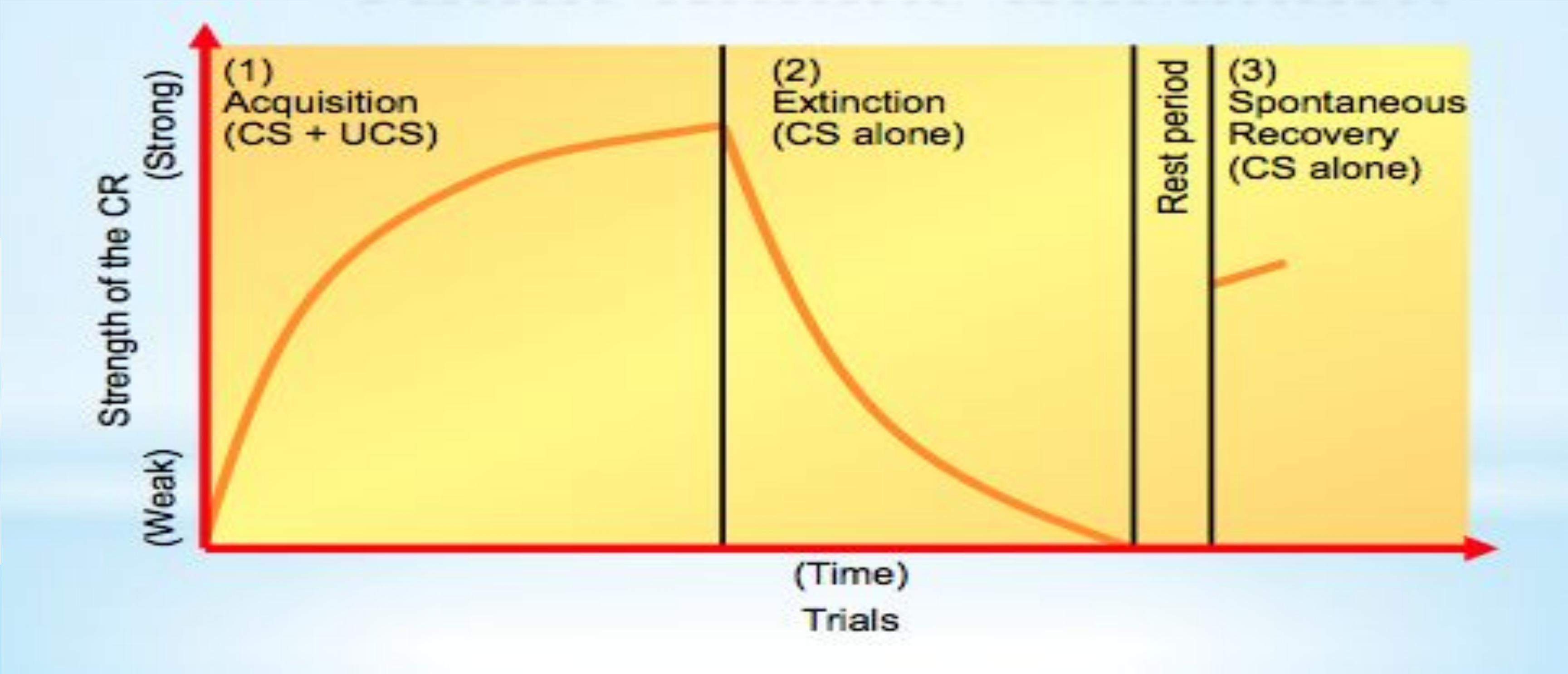
- *Neutral stimulus* – Any stimulus that produces no conditioned response prior to learning
- *Acquisition* – Initial learning stage in classical conditioning; association formed between the CS and UCS; CS elicits same response as UCS


1. Before conditioning
response
Food
Salivation
Unconditioned stimulus
Unconditioned response
2. Before conditioning
response
Tuning fork
No salivation
Neutral stimulus
No conditioned response
3. During conditioning
response
Tuning fork
Food
Salivation
Unconditioned response
4. After conditioning
response
Tuning fork
Salivation
Conditioned stimulus
Conditioned response

How do we achieve extinction??

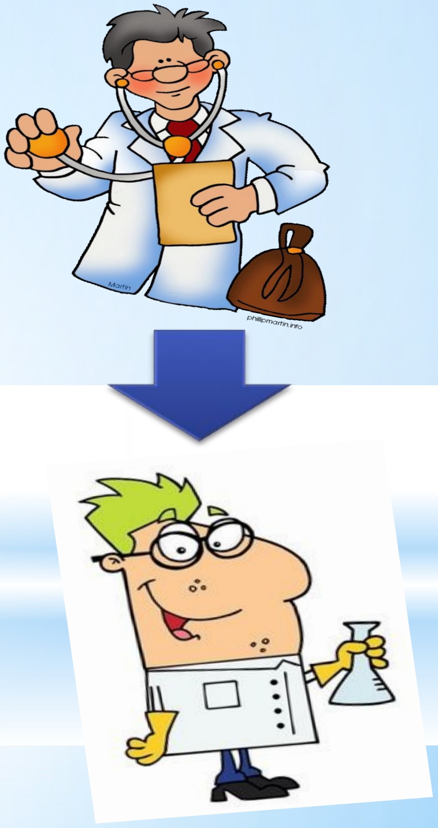
- Extinction = Weakening of a conditioned association in the absence of an unconditioned stimulus or reinforcer
- We need to break the link between the CS and the UCS by repeatedly presenting the CS (doctor or bell) without the UCS (injection or meat powder)

******Spontaneous recovery* – Reappearance of an extinguished conditioned response after a time delay

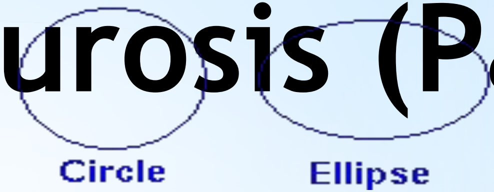


Generalization and Discrimination

- *Stimulus generalization* involves giving a conditioned response to stimuli that are similar to the CS
- *Stimulus discrimination* involves responding to one stimulus but not to stimuli that are similar
- Confusing stimuli may cause *experimental neurosis*



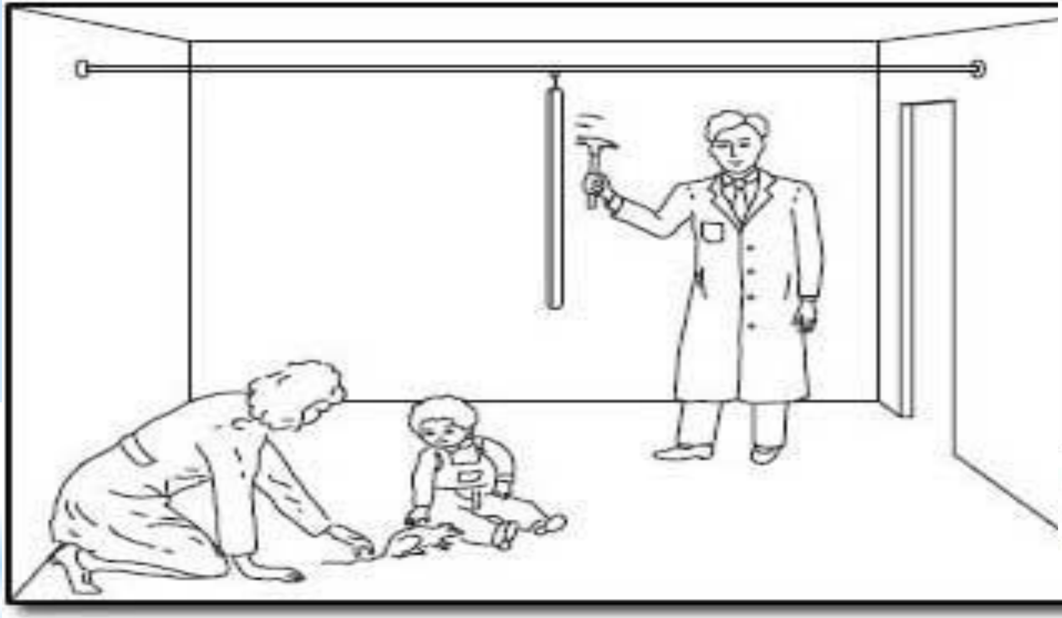
Experimental Neurosis (Pavlov)



- Pattern of erratic behavior that results from demanding discrimination learning task; usually involving aversive stimuli
- Pavlov – dogs had to discriminate between circle and ellipse; one was paired with food, the other with electrical shock; he gradually changed ellipse to look increasingly circular
- Dogs got confused, snarled/snapped at handlers

**people get irritable, defensive with difficult decision making

Conditioning PHOBIAS: Watson's Little Albert



Rosalie Rayner holds Little Albert as he plays with a white lab rat. Watson, left, observes the boy. (Archives of the History of American Psychology—The University of Akron.)

By pairing a loud noise (UCS) with a white rat (CS), Watson was able to condition Little Albert to fear the rat; this CR generalized to a white rabbit, fur coat, Santa mask, etc.; **most fears are learned, not innate!**

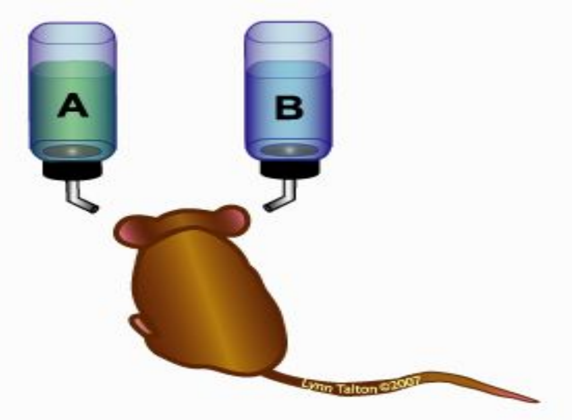
*The Garcia Effect

Inborn Bias

-rats have inborn preconceived notion that matches up specific signs with selected outcomes.

-When the rats predicted illness, they avoided the saccharin-flavored water, but they did not avoid this sweet water when they saw a shock coming (illness doesn't occur following sharp pain to feet!)

-On the other hand, the rats would stay clear of the bright lights/noise when it signaled electric shock, but could not learn to connect light/sound cues to illness



*****the COMBINATION of the UCS & CS matters! Not just anything can be***

UCS	radiation	electric shock to feet	electric shock to feet
UCR	nausea		pain
CS	saccharine (sugar) water	saccharine (sugar) water	bright lights/loud noises
CR	nausea		pain
Results of conditioning:	**rats developed aversion to sugar water	**rats couldn’t learn association between UCS and CS - electric shock to feet is not a predictor of illness	**rats did learn association between the UCS and CS; couldn’t connect light/sound cues to illness

*Importance of Garcia's Research

- *We are biologically predisposed to create certain associations between certain stimuli (BIOLOGICAL PREPAREDNESS)*
- Contradicted the belief that for conditioning to occur, the UCR must immediately follow the neutral stimulus (CS)
- Rats developed aversions to taste, but not to sights or sounds – disproved theory that ANY stimulus could become a CS for any UCS
  - *CS-UCS connections are selective*
- *Challenge to Pavlov – taste aversion is not entirely learned!*

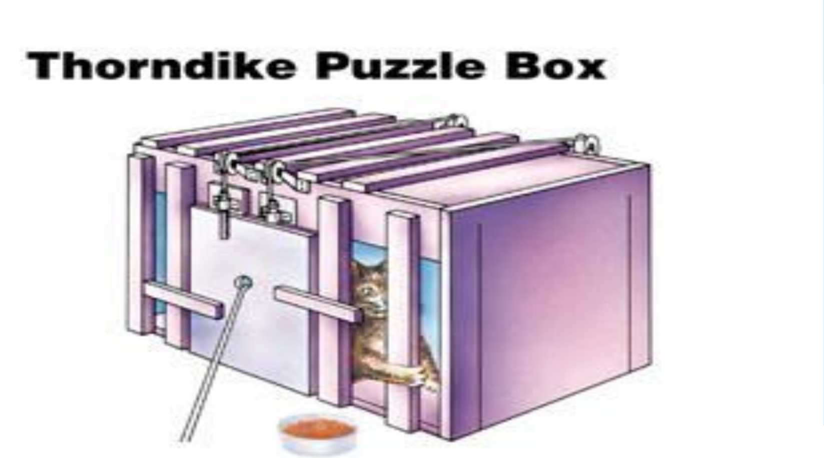
*Scapegoat Stimuli

- *Chemo-induced nausea often creates taste aversion for food eaten before chemo
- *patients are sometimes given candy (ie Black licorice) before chemotherapy as a “scapegoat stimulus”
- *They will then develop an aversion for that specific food, and not others

How Do We Learn New Behaviors by Operant Conditioning?

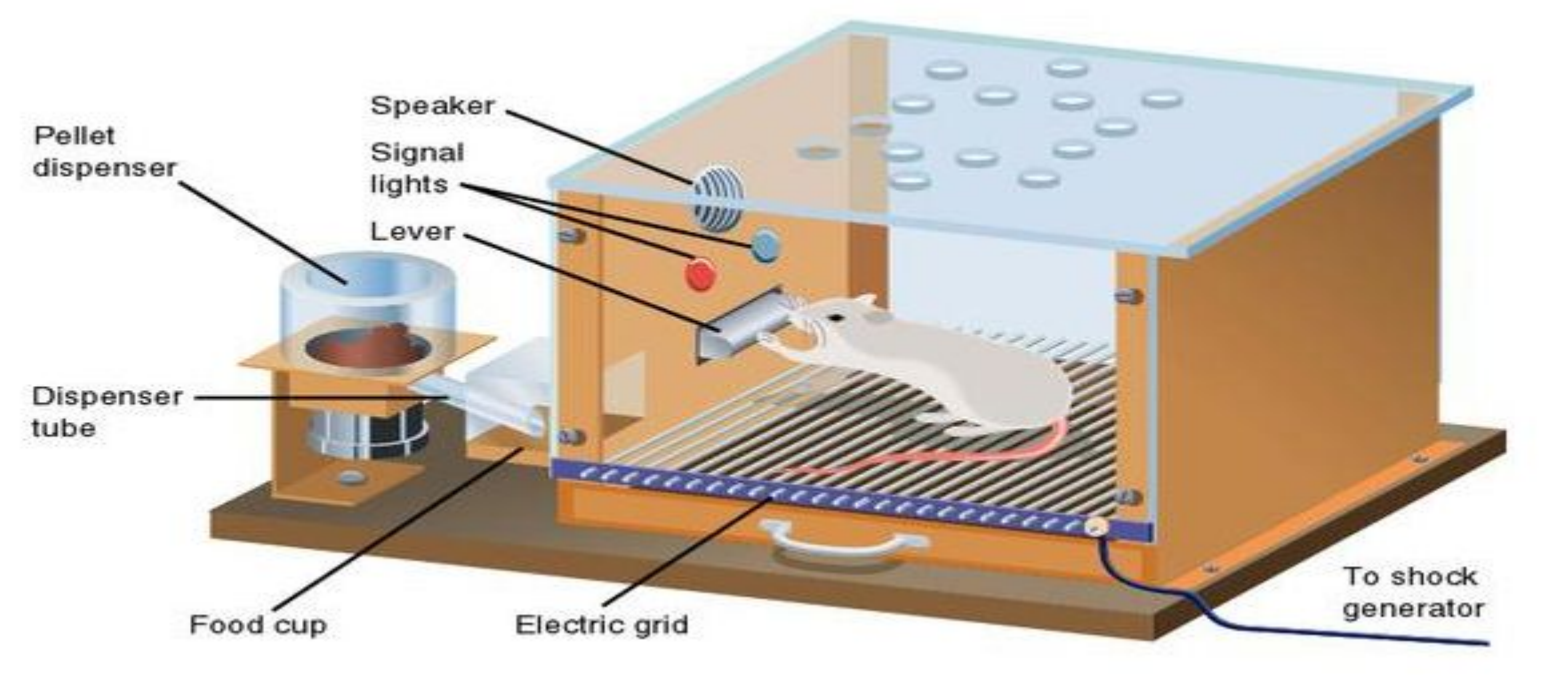
- *Trial-and-error learning* – Learner gradually discovers the correct response by attempting many behaviors and noting which ones produce the desired consequences; Law of Effect (Edward Thorndike)

Puzzle Box clip



Skinner builds on this idea, but DISCOUNTS the animal's desires; what they THINK is not observable

- B.F. Skinner believed that the most powerful influences on behavior are its consequences

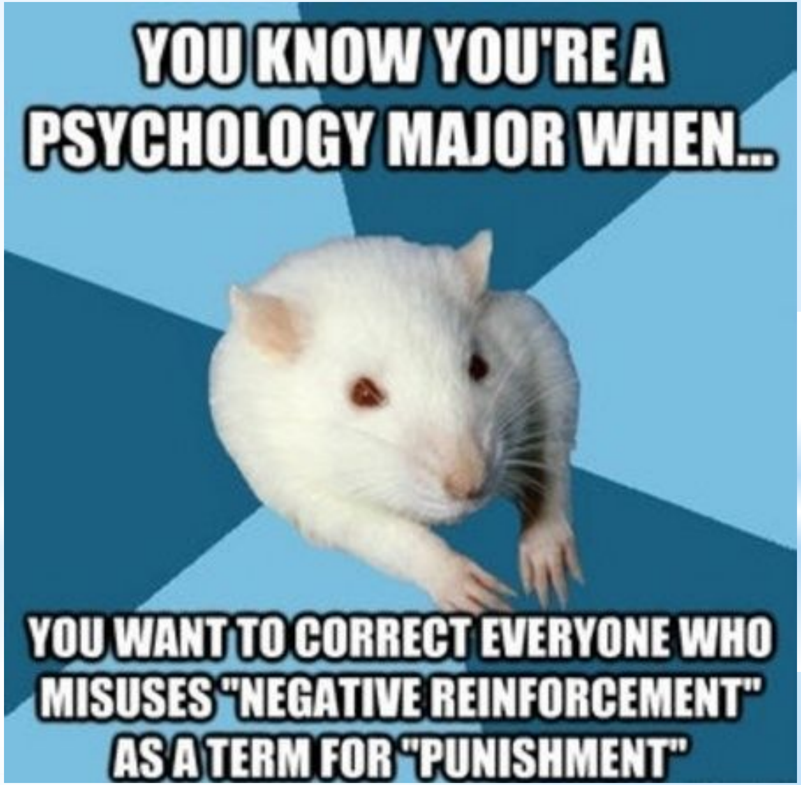

Speaker
Pellet dispenser
Signal lights
Lever
Dispenser tube
Food cup
Electric grid
To shock generator

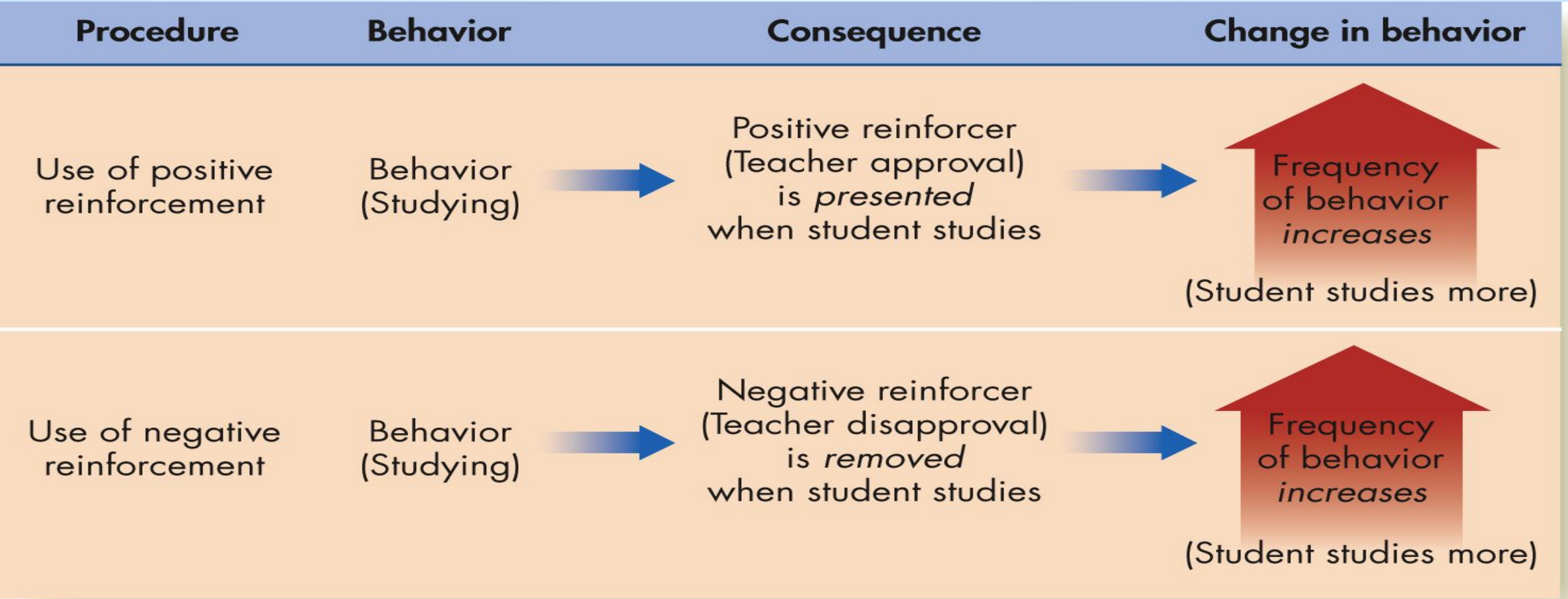
Skinner's Radical Behaviorism

*Reinforcement v. Punishment

*Reinforcement STRENGTHENS behavior

*Punishment WEAKENS/ DIMINISHES behavior

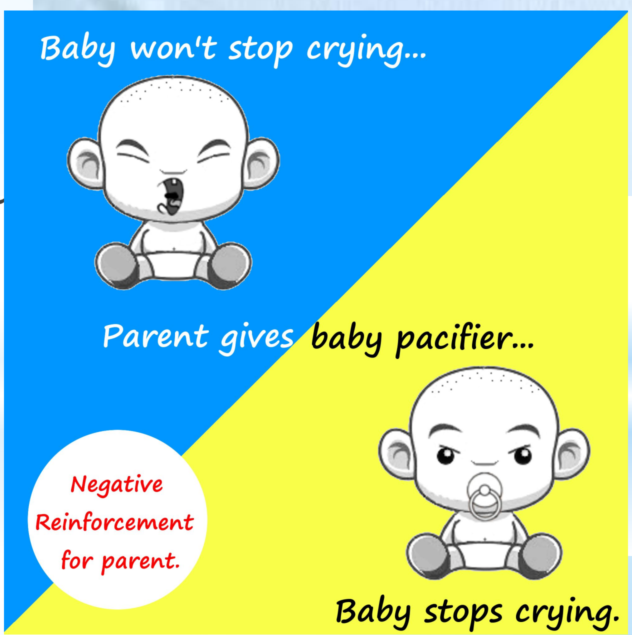

YOU KNOW YOU'RE A PSYCHOLOGY MAJOR WHEN...
YOU WANT TO CORRECT EVERYONE WHO MISUSES "NEGATIVE REINFORCEMENT" AS A TERM FOR "PUNISHMENT"



Procedure	Behavior	Consequence	Change in behavior
Use of positive reinforcement	Behavior (Studying)	Positive reinforcer (Teacher approval) is *presented* when student studies	Frequency of behavior *increases* (Student studies more)
Use of negative reinforcement	Behavior (Studying)	Negative reinforcer (Teacher disapproval) is *removed* when student studies	Frequency of behavior *increases* (Student studies more)

Negative Reinforcement

- The annoying buzzer in your car STOPS when you put your seatbelt on
- An annoying kid STOPS whining when you buy him a candy bar
- Your nagging mom/dad/grandmom, etc. STOPS nagging when you take out the trash (hopefully)
- Your lecturing by your mother STOPS when you get your homework done

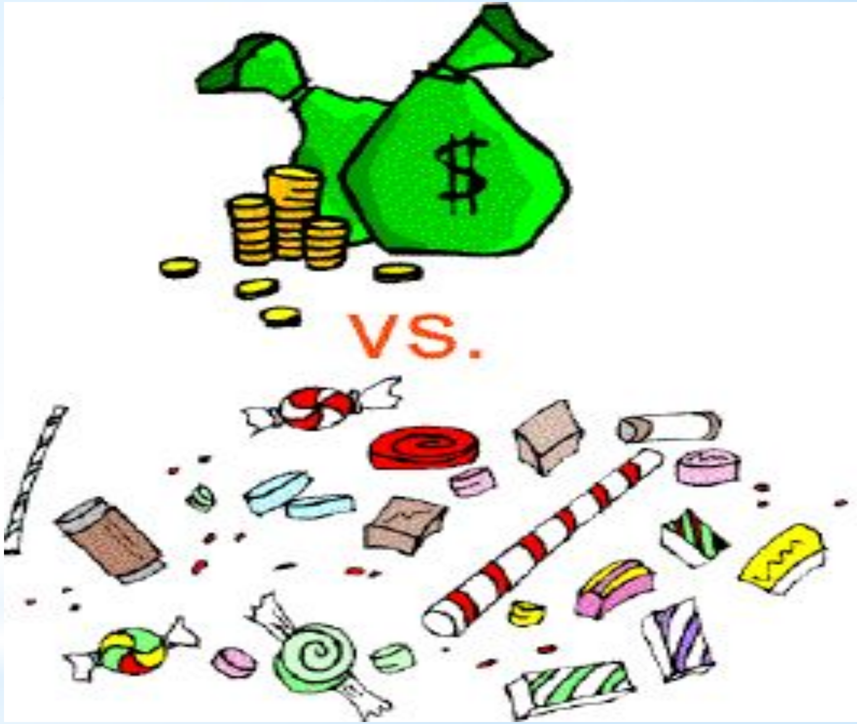

Baby won't stop crying...
Parent gives baby pacifier...
Negative Reinforcement for parent.
Baby stops crying.

*Escape & Avoidance Learning

- *Escape* – a behavior terminates an aversive event
  - You can escape a headache by taking an Aspirin (you're likely to get rid of the headache and do this again in the future!)
- *Avoidance* – a behavior happens in the presence of a signal that informs the organism that an aversive event is likely
  - You can avoid indigestion by taking an antacid before eating a spicy meal

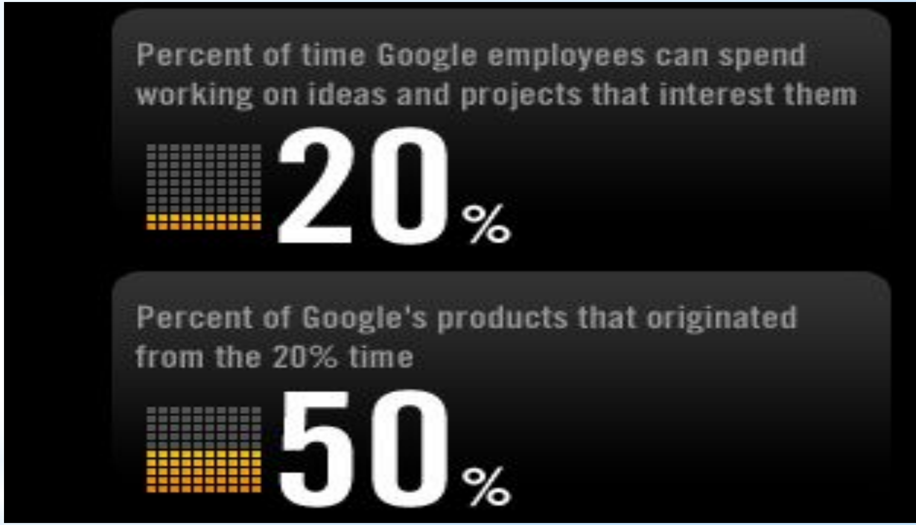
TUMS
REGULAR STRENGTH
TUMS
REGULAR STRENGTH
TUMS
EXTRA 750

- *Primary reinforcers* – Reinforcers, such as food and sex, that have an innate basis because of their biological value to an organism (*unconditioned*)
- *Secondary reinforcers* – Stimuli, such as money or tokens, that acquire their reinforcing power by their learned association with primary reinforcers (also called *conditioned reinforcers*)



*Premack Principle

- *David Premack (1965)
- *Preferred activities can be used to reinforce less preferred ones
- *Ex: in order to get students to sit still, a teacher rewards good behavior with opportunities for students to run around and make noise



Percent of time Google employees can spend working on ideas and projects that interest them

20%

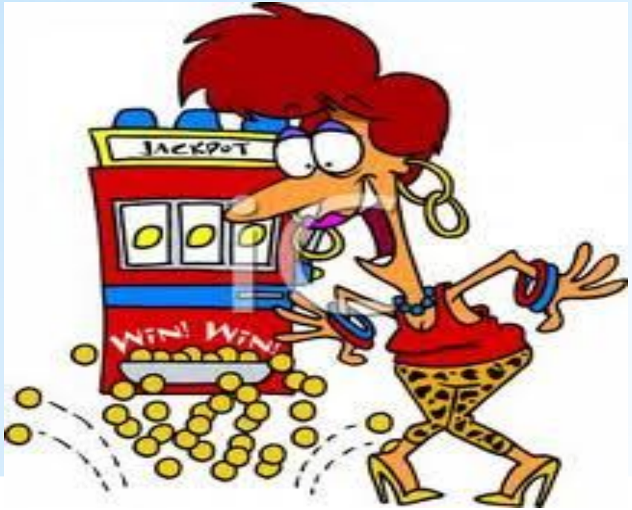
Percent of Google's products that originated from the 20% time

50%

*Contingencies of Reinforcement

- *Continuous reinforcement* – Reinforcement schedule in which all correct responses are reinforced
- *Partial/Intermittent reinforcement* – Reinforcement schedule in which some, but not all, correct responses are reinforced (also called *intermittent reinforcement*)

WHICH IS BEST FOR AVOIDING EXTINCTION???


JACKPOT
WIN! WIN!

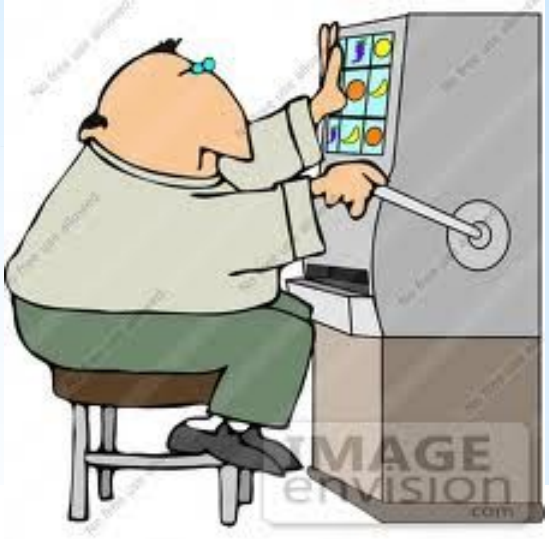


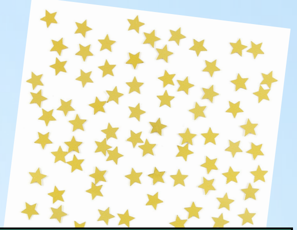
IMAGE envision .com

Who will stop playing first - the woman who's been continually reinforced or the man whose machine pays off intermittently??

Continuous v. Intermittent Reinforcement

- Continuous can be used to SHAPE complex behaviors (ie. Music teachers can keep raising the standard for reward when teaching a new instrument, dance teachers reward for more complex steps)
- Intermittent – must be used to maintain behavior once it is learned; more resistant to extinction

*Schedules of Reinforcement



Fixed Ratio (FR)

Variable Ratio (VR)

Fixed Interval (FI)

Variable Interval (VI)

Rewards appear after a certain set number of responses

e.g. students get gold star for every 10 correct answers; “Buy 10 Get 1 Free”; employers – commission for certain # of cars sold; video game “lives”

*Schedules of Reinforcement

Best for maintaining behavior

Fixed Ratio (FR)

Variable Ratio (VR)

Fixed Interval (FI)

Variable Interval (VI)

Rewards appear after a certain number of responses, but that number varies from trial to trial; consistent, high rate of response, resistant to extinction

e.g. lottery; slot machine pay-offs; telemarketers

How many No's before a YES??

*Schedules of Reinforcement

Fixed Ratio (FR)

Variable Ratio (VR)

Fixed Interval (FI)

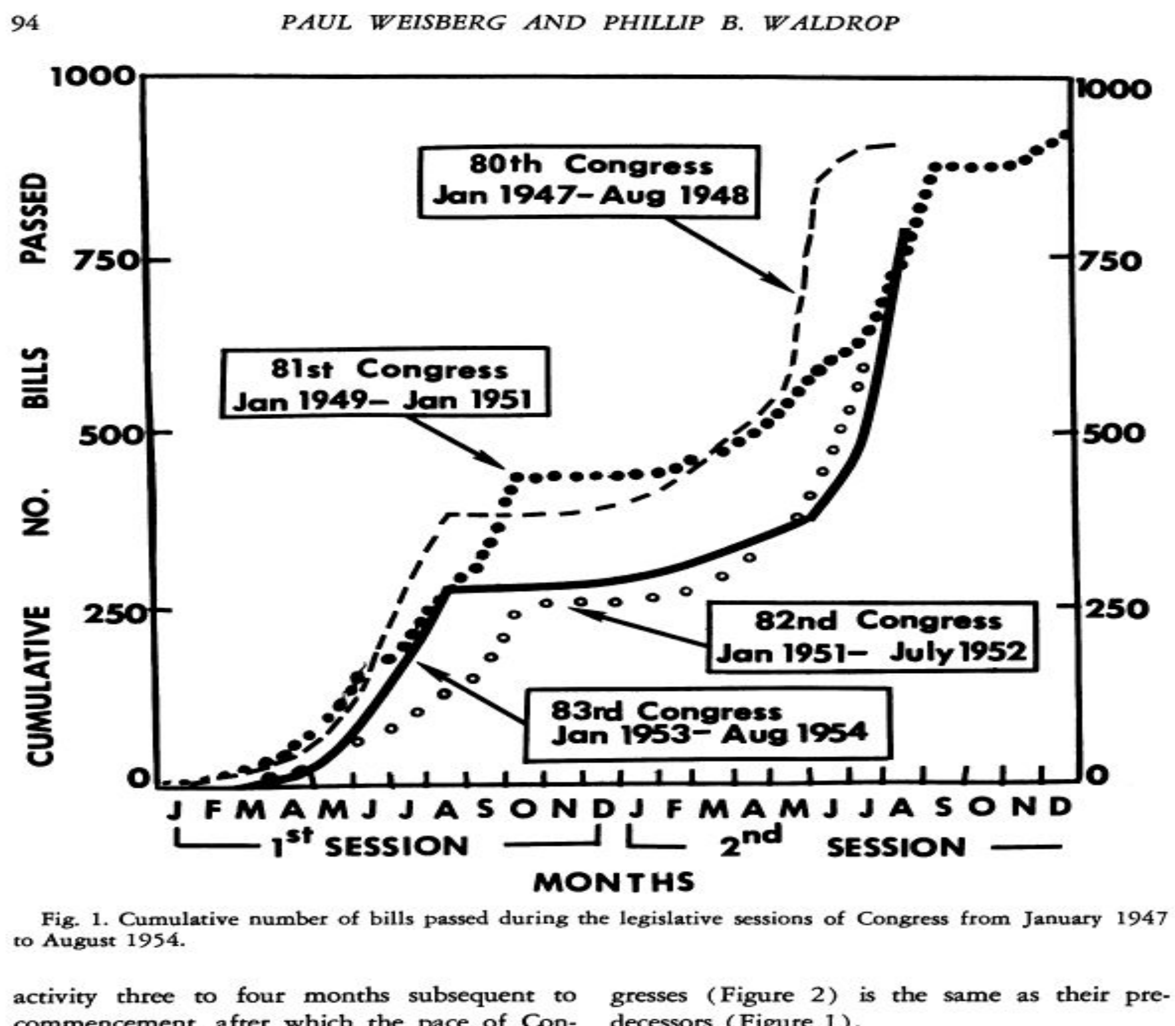
Variable Interval (VI)

Rewards appear after a certain fixed amount of time, regardless of number of responses; responses in between are seen as wasted energy; low response rate

e.g. weekly or monthly paychecks; weekly quizzes

Fixed Interval (FI)

- Several studies have shown that members of Congress consistently write more bills towards the end of their session



94 PAUL WEISBERG AND PHILLIP B. WALDROP

1000
750
500
250
0
CUMULATIVE NO. BILLS PASSED
80th Congress
Jan 1947–Aug 1948
81st Congress
Jan 1949– Jan 1951
82nd Congress
Jan 1951– July 1952
83rd Congress
Jan 1953– Aug 1954
J F M A M J J A S O N D J F M A M J J A S O N D
1st SESSION
2nd SESSION
MONTHS

Fig. 1. Cumulative number of bills passed during the legislative sessions of Congress from January 1947 to August 1954.

activity three to four months subsequent to commencement, after which the pace of Congresses (Figure 2) is the same as their predecessors (Figure 1).

*Schedules of Reinforcement

Fixed Ratio (FR)

Variable Ratio (VR)

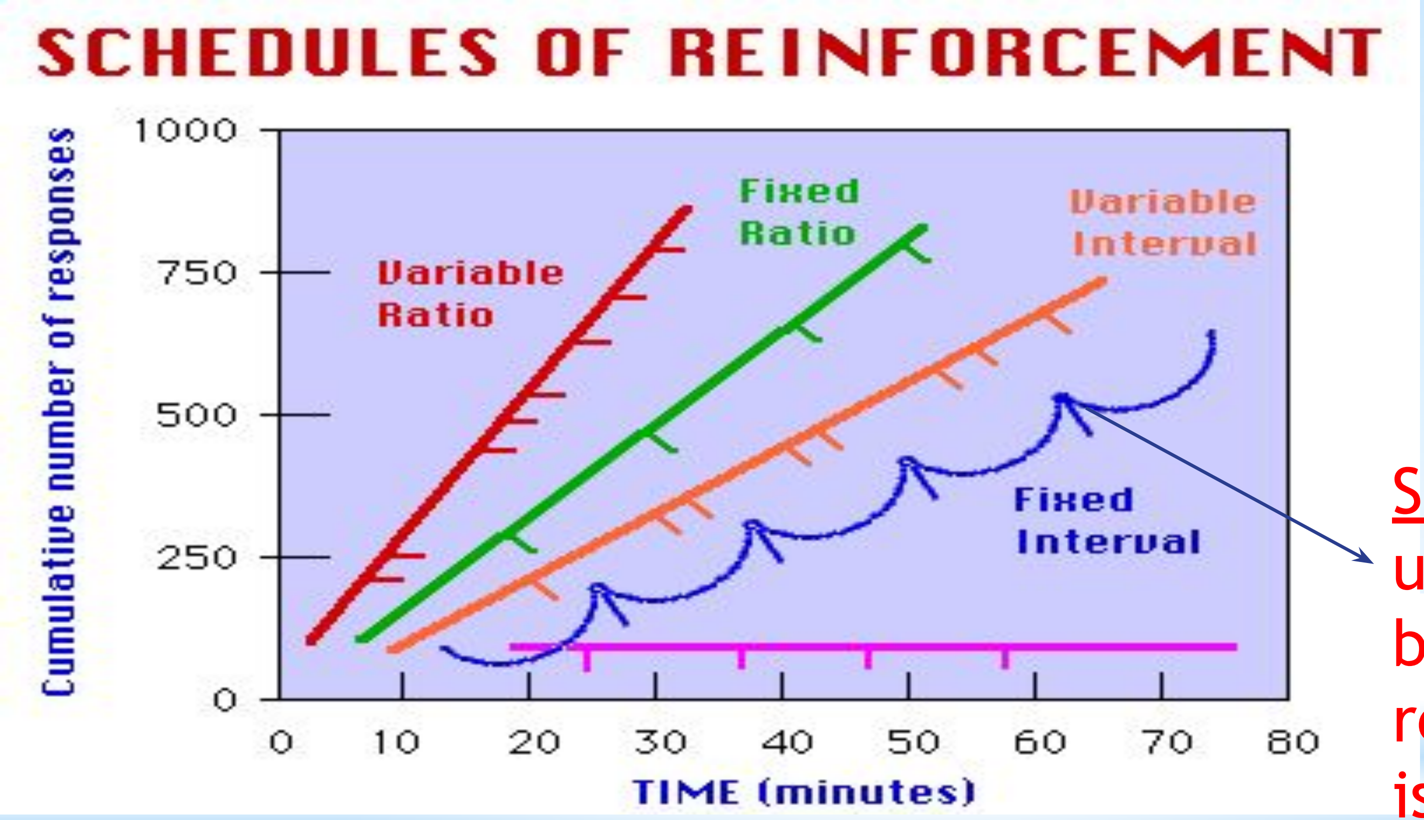
Fixed Interval (FI)

Variable Interval (VI)

**most resistant to extinction

Rewards appear after a certain amount of time, but that amount varies from trial to trial; most unpredictable responses

e.g. pop quizzes; random visits from the boss who delivers praise



Scalloping – uptick in behavior before reinforcement is scheduled

- **Which is best for maintaining behavior??**

Variable Ratio

The Problem of Punishment

- *Punishment* – An aversive stimulus diminishes the strength of the response it follows
- How does this differ from *negative reinforcement*?
- An aversive stimulus is ADDED, not REMOVED!!

I WAS RUDE
TO MY TEACHER
I can't come to school
I Am Sorry !!!
STOCK

Is this too much??

*Punishment vs. Negative Reinforcement

Negative Reinforcement

Response · Consequence

Loud Noise → Press Lever → Loud Noise Removed

BEHAVIOR STRENGTHENED

Punishment

No Noise → Press Lever → Loud Noise Applied

BEHAVIOR WEAKENED

The Problem of Punishment

- ***Positive punishment*** – The application of an aversive stimulus after a response (ex. Speeding ticket, spray bottle, spanking)
- ***Negative punishment***– The removal of an appetitive stimulus after a response (ex. Child grabs a toy so mother takes away TV – child is less likely to grab toy in future, time outs)

*Four Kinds of Consequences

	Strengthen (Reinforcement)	Weaken (Punishment)
+ Added	**Positive Reinforcement** Bonus for working hard leads to more hard work	**Positive Punishment** Getting speeding ticket leads to less speeding
- Removed	**Negative Reinforcement** Aspirin curing headache causes more aspirin use	**Negative Punishment** Taking away TV leads to less toy grabbing

Operant and Classical

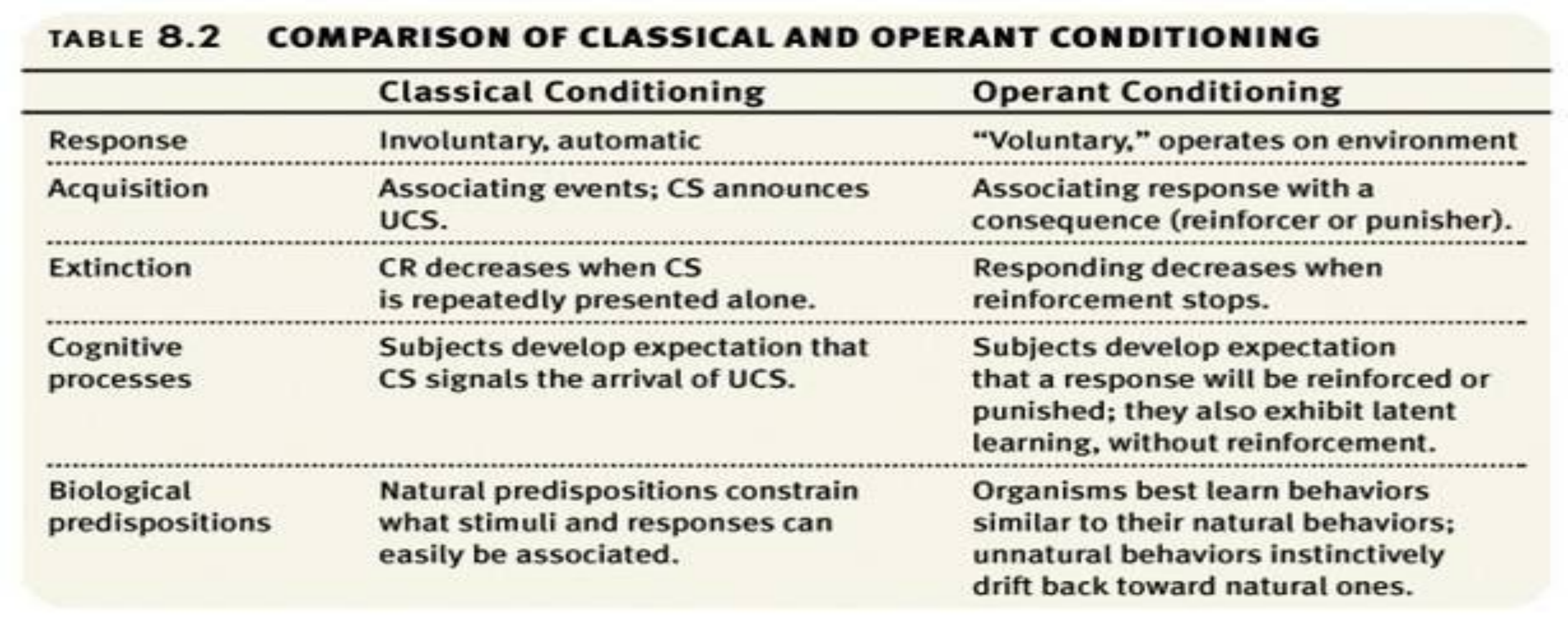


TABLE 8.2 COMPARISON OF CLASSICAL AND OPERANT CONDITIONING

	Classical Conditioning	Operant Conditioning
Response	Involuntary, automatic	"Voluntary," operates on environment
Acquisition	Associating events; CS announces UCS.	Associating response with a consequence (reinforcer or punisher).
Extinction	CR decreases when CS is repeatedly presented alone.	Responding decreases when reinforcement stops.
Cognitive processes	Subjects develop expectation that CS signals the arrival of UCS.	Subjects develop expectation that a response will be reinforced or punished; they also exhibit latent learning, without reinforcement.
Biological predispositions	Natural predispositions constrain what stimuli and responses can easily be associated.	Organisms best learn behaviors similar to their natural behaviors; unnatural behaviors instinctively drift back toward natural ones.

*How Does Cognitive Psychology Explain Learning?

- How would a behaviorist explain "flashes of insight"??
- Cognitive psych - Learning may not always show itself in behavior; may be reflected in mental activity alone

Oh, I get it now!

*Insight Learning: Kohler's Chimps

- *Chimps could solve complex problems by combining simpler behaviors they had previously learned separately – not mindlessly using conditioned behavior!
- **Insight learning* – Problem solving occurs by means of a sudden reorganization of perceptions; perceptual reorganization = cognitive explanation

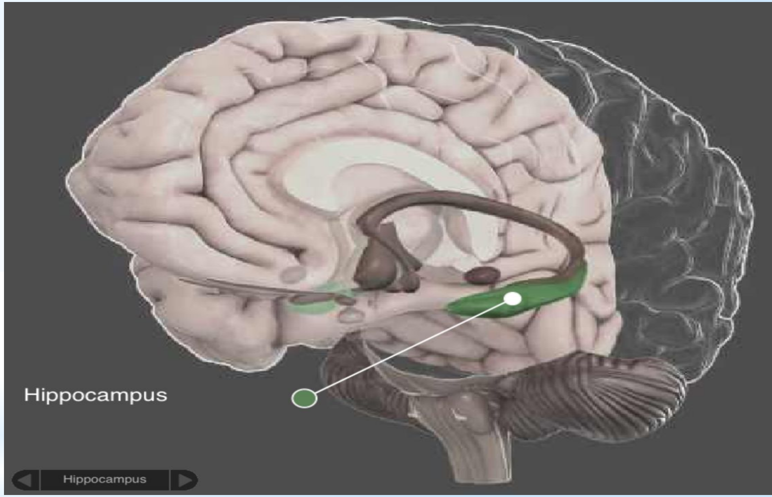
*Tolman's Maze Learning

How does we (or in Tolman's case a rat) find our way around when a familiar pathway is blocked??

- Skinner – "chained associations"- each turn is assoc. w/ turn before and after – NOT final destination
- *Tolman - Cognitive maps* –
  A mental representation of physical space that we use to navigate through a familiar environment; relationship between starting point and destination

Learning WITHOUT Reinforcement

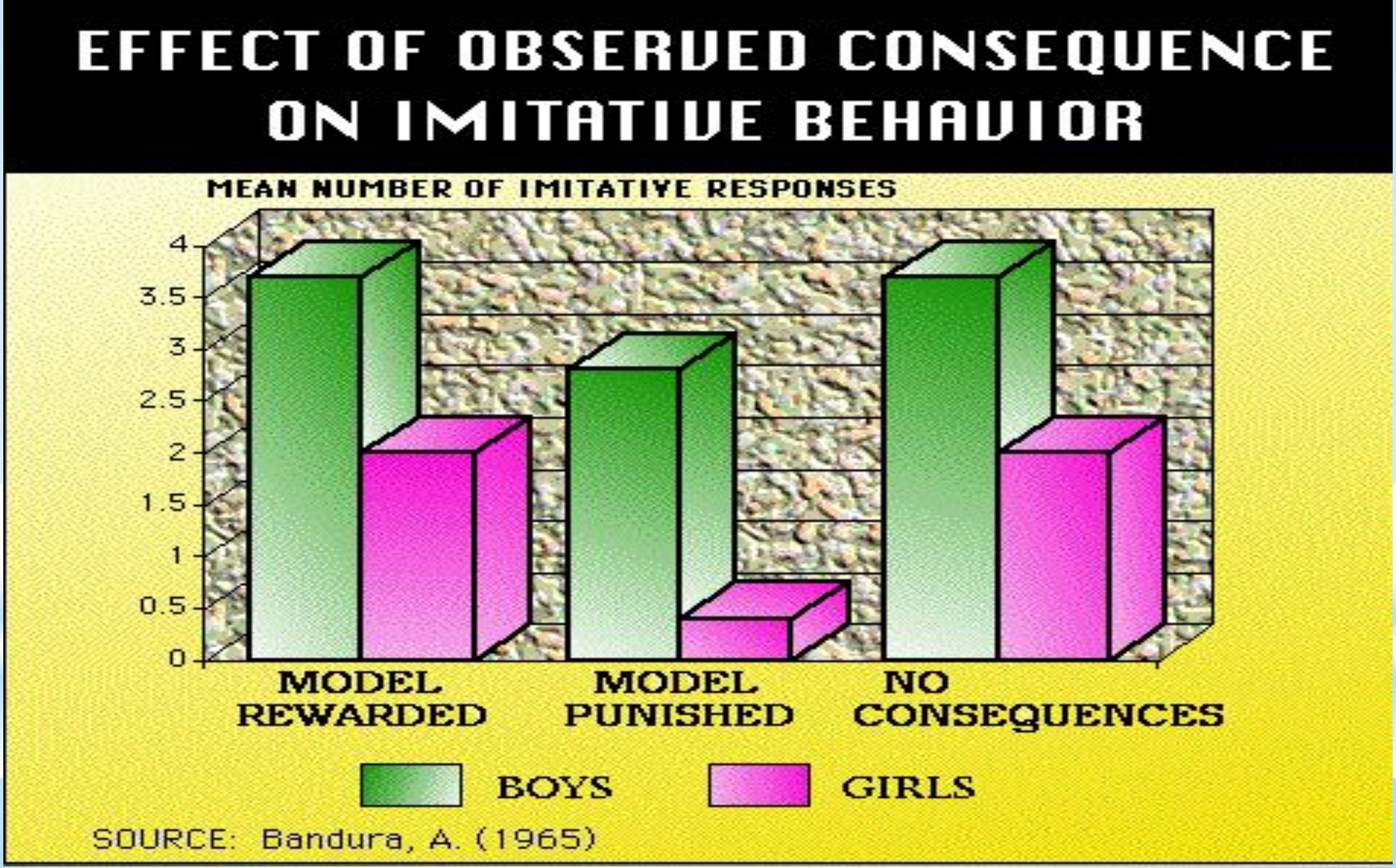
- Tolman let rats wander through maze with no reinforcement
- Latent learning – even w/o reinforcement, rats who had time to explore navigate the maze much more quickly than those who had not
- Significance:
  - Challenge to behaviorism



Research shows involvement of hippocampus – we can learn spatial layout even

Observational Learning: Bandura's Challenge to Behaviorism

- ***Direct rewards are NOT NEEDED to learn new behavior; we can learn simply by watching others being rewarded***
- *Observational learning* – Form of cognitive learning in which new responses are acquired after watching others' behavior and the consequences of their behavior

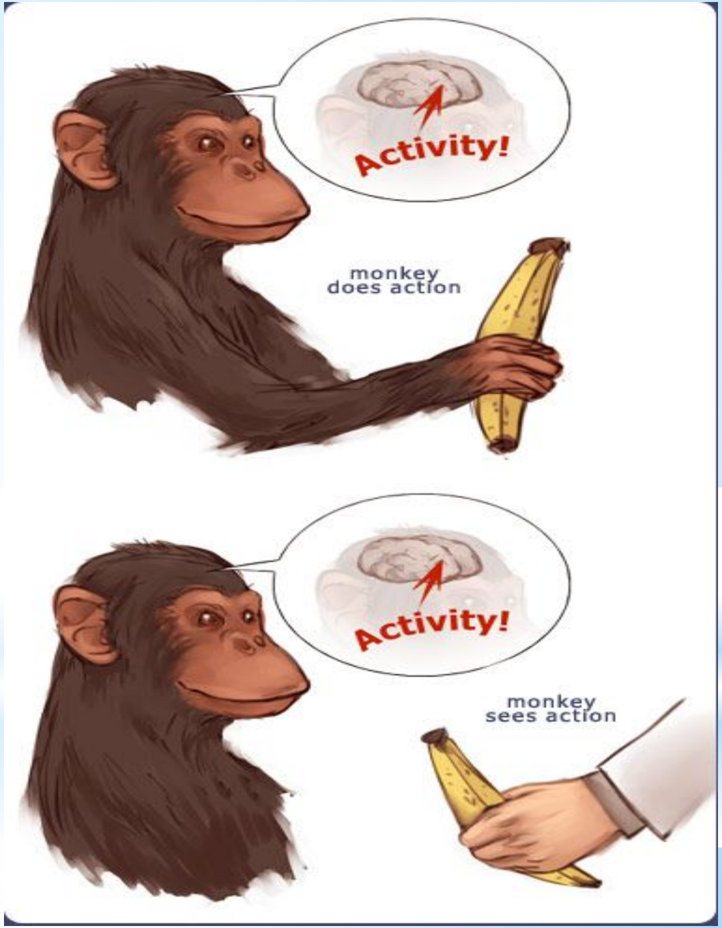


EFFECT OF OBSERVED CONSEQUENCE ON IMITATIVE BEHAVIOR

SOURCE: Bandura, A. (1965)

*Mirror neurons

- neurons that fire when we both perceive and take an action
- Allow us to learn behaviors by watching others
- Proponents claim that they aid in: observational learning, empathy

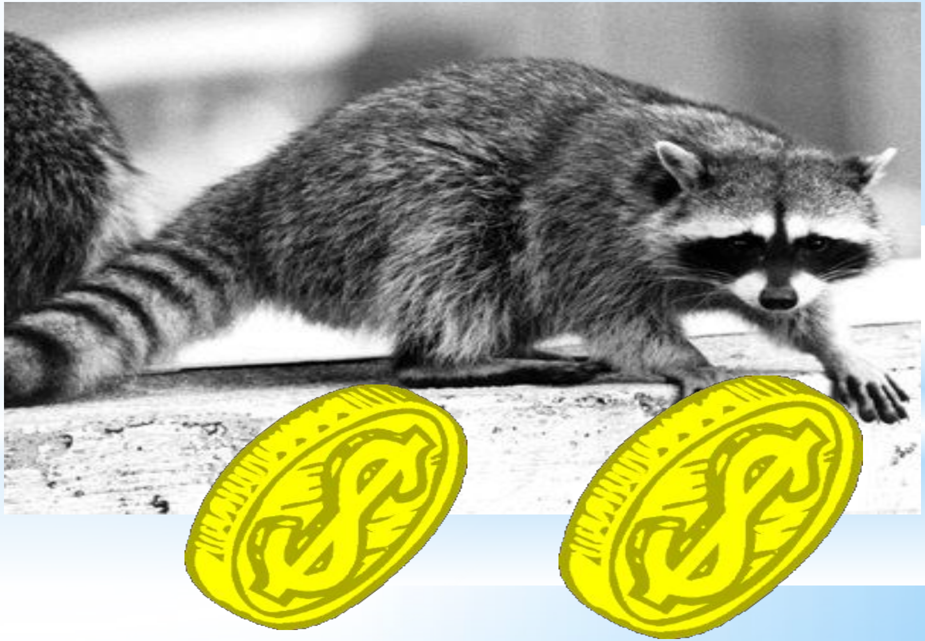

Activity!
monkey does action
Activity!
monkey sees action

Predictive Value of Stimuli

- *Informativeness* – a stimulus' value in predicting the onset of a conditioned response (Robert Rescorla)
  - Ie. In humans, taste aversions are more likely than aversions to sight/sounds
- a learner will only form a CS-CR association if the CS provides unique info about the UCS (Kamin)
  - We pay greater attention to smell of smoke than sight of smoke – smell of something burning is a better predictor that there IS a fire somewhere

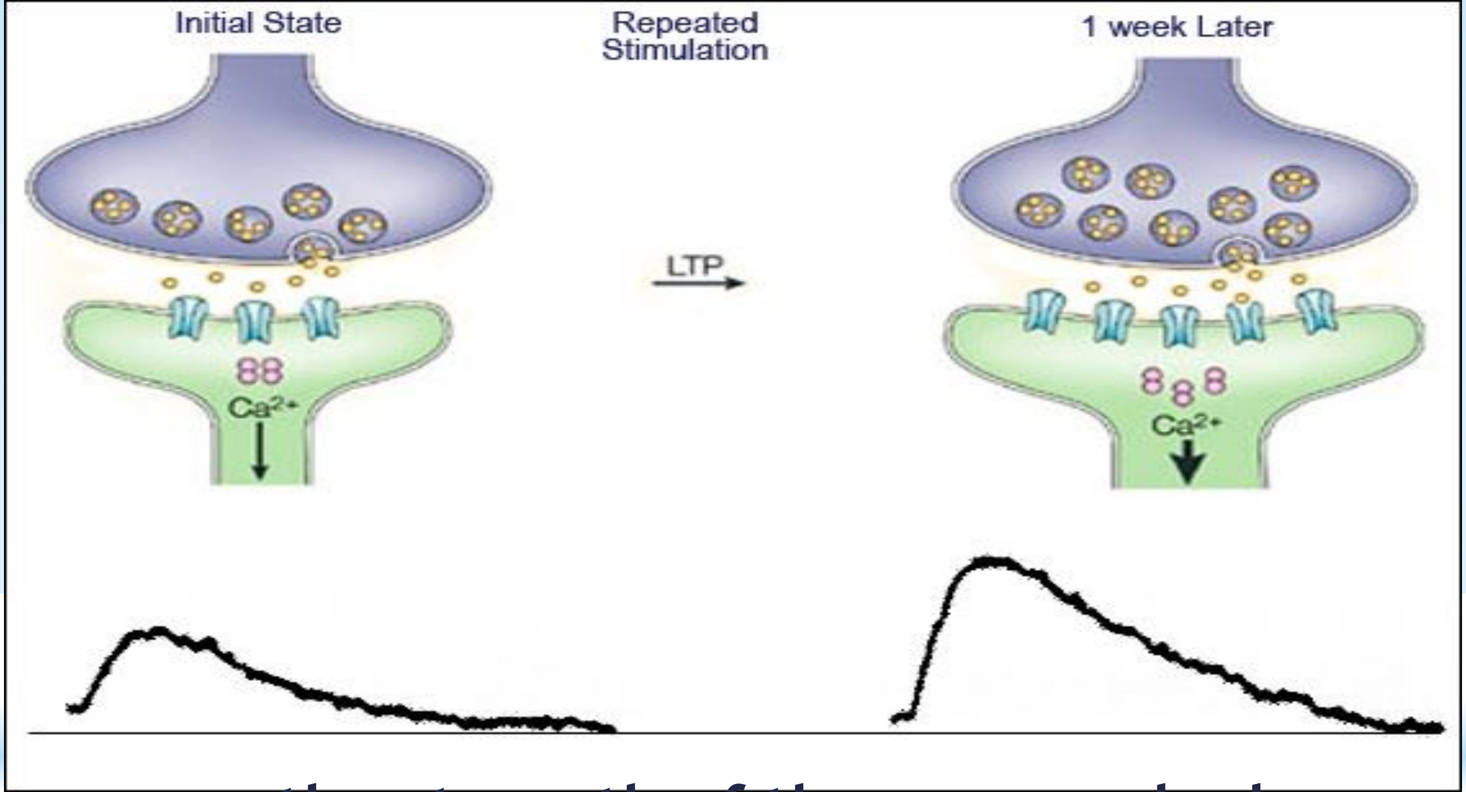
Biological Limits on Conditioning

- Taste aversion – biology enables CC (natural aversive stimulus)
- Instinctive drift – instinctual behaviors, or fixed action patterns, override conditioning (biology inhibits learning)



*The Brain and Learning

- Learning involves strengthening of synaptic connections among neurons (long term potentiation)
- Operant conditioning acts on brain’s reward pathways – dopamine receptors
- Kandel & Hawkins
  - Connection between behavioral and cognitive learning at the level of brain pathways
  - 2 types of nerve circuits may divide the task of learning
    - Simple (simple, “mindless” responses – ie. Motor skills, dog drooling)
    - complex (higher forms of learning, ie. Observational, insight, memory for events)


Initial State
Repeated Stimulation
1 week Later
LTP
Ca2+
Ca2+

We measure the strength of the synapse by how much the postsynaptic neuron’s potential (charge) changes as a result of presynaptic stimulation – LTP when strength lasts over a period of time

Chapter 7: Memory, Language & Cognition

Crash Course - How We Make Memories

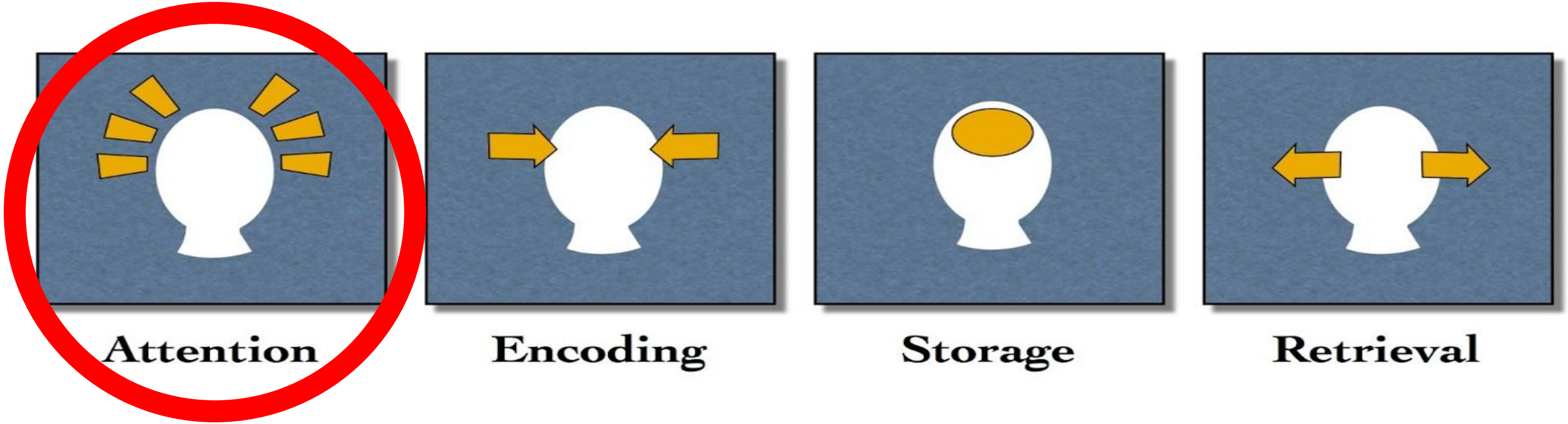
Crash Course - Remembering and Forgetting

Crash Course - How Your Mind Can Amaze & Betray You

Crash Course - Language

Quizlet

How important is attention in LEARNING?


Attention
Encoding
Storage
Retrieval

senseandsensation.co

Information Processing Model of Memory: human memory takes meaningless sensory info. And changes it to meaningful patterns that can be stored & retrieved later.

3 Tasks:

Encoding

Storage

Retrieval

Memory's Three Basic Functions

Encoding

Storage

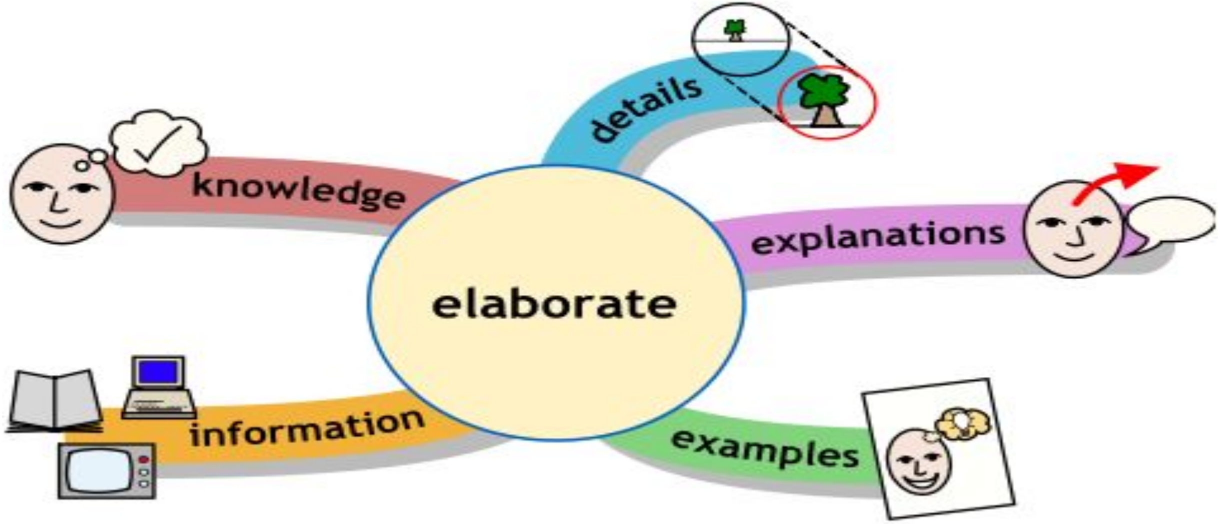
Retrieval

- mostly NO awareness; converting info. into a usable form

1. Select stimulus from many
2. Identify distinctive features
3. Label an experience to make it meaningful

Elaboration

elaborative rehearsal - deliberate encoding in which you connect a new concept with existing information


details
knowledge
explanations
elaborate
information
examples

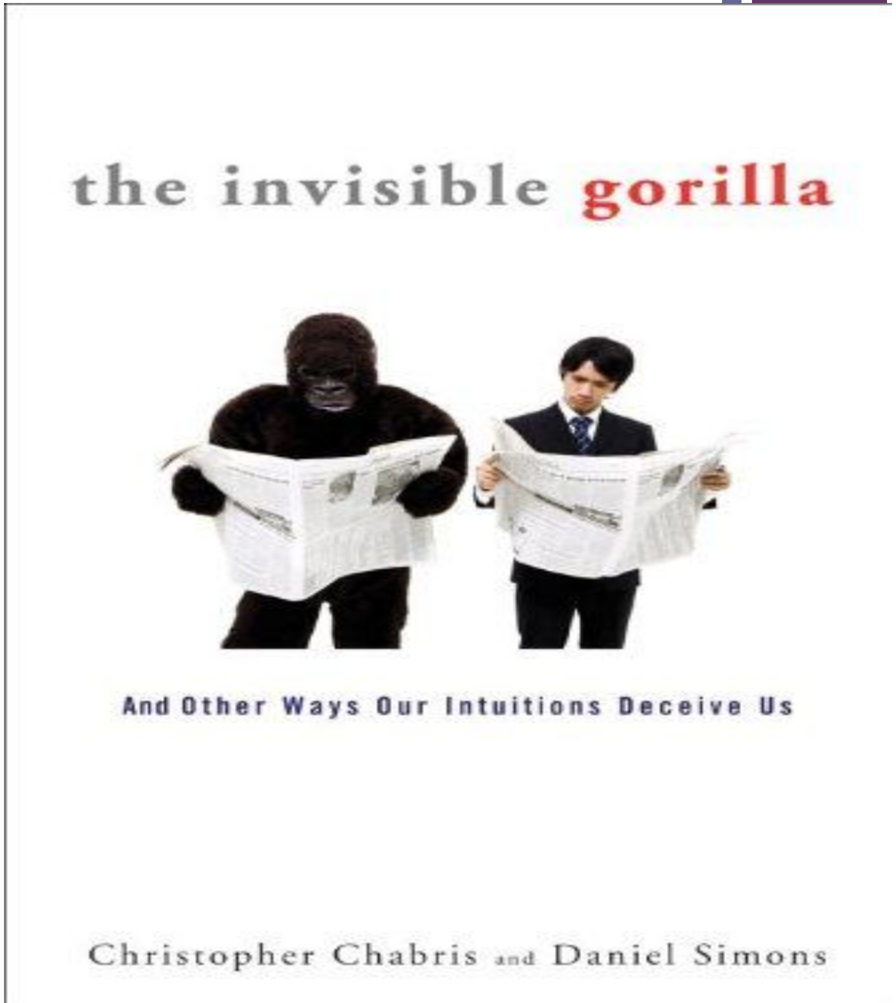
Selective Attention

- Determines which sensory messages get encoded; encoding what we are attending to or what is important to us.
  - Cocktail party effect – we can focus on only one voice among many

Inattention

- Inattentional blindness – with attention diverted elsewhere, we can miss what is right in front of us!

- Change blindness – blindness to change due to inattention



the invisible gorilla

And Other Ways Our Intuitions Deceive Us

Christopher Chabris and Daniel Simons

Memory's Three Basic Functions

Encoding

Storage

Retrieval

- Involves retention of encoded material over time; 3 stages store for diff. lengths of time

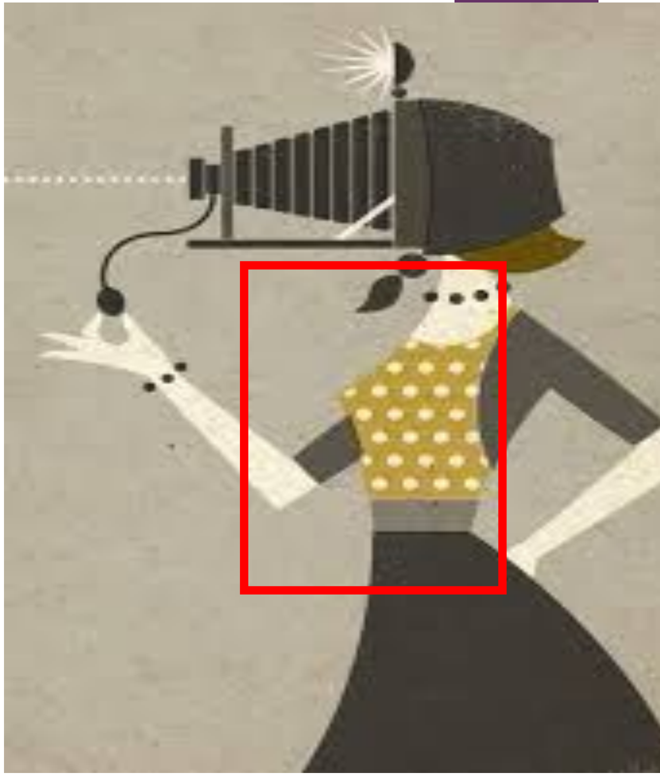
Memory's Three Basic Functions

Encoding **Storage** ***Retrieval***

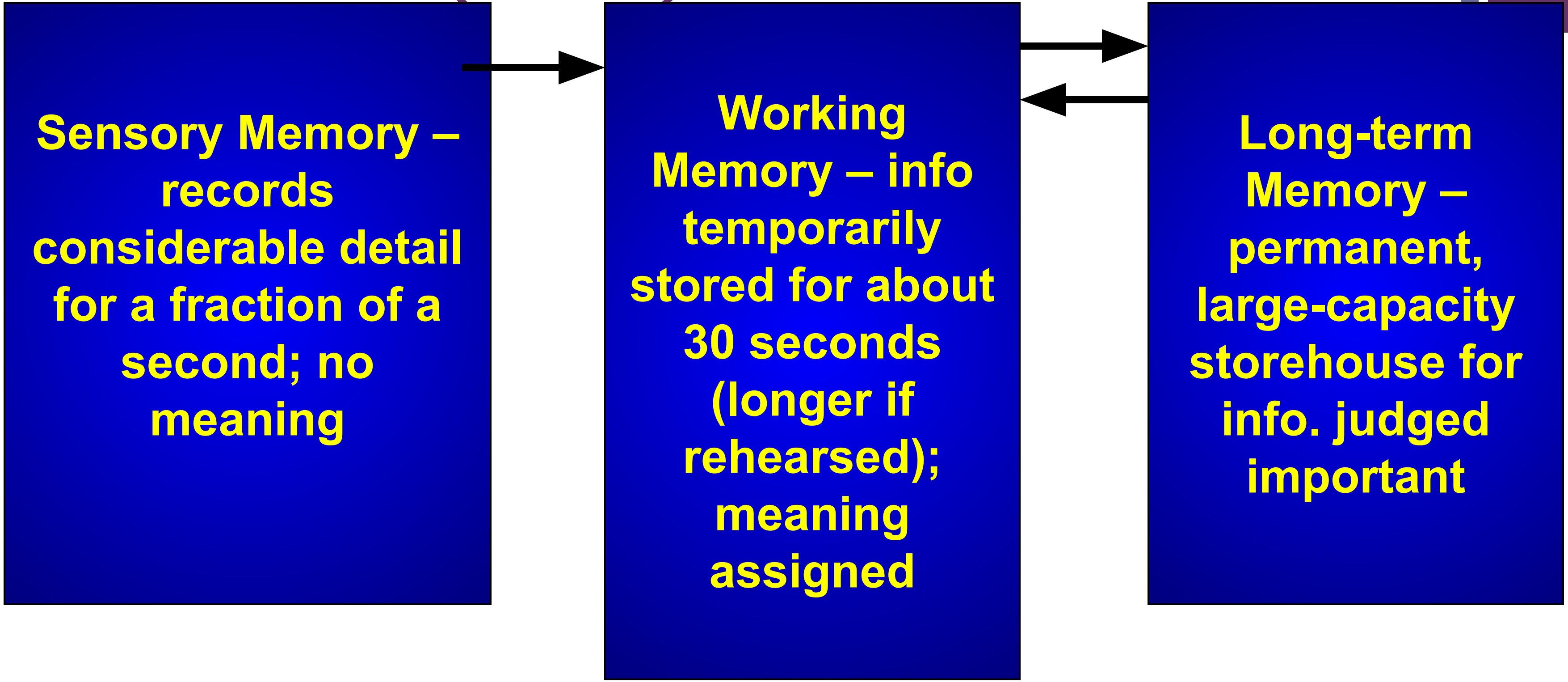
- Involves the location and recovery of information from memory
- If encoded properly it can be retrieved quickly and brought to consciousness by a cue
- Problems: makes errors, distorts, omits, etc.

Eidetic (“Photographic”) Memory

- Not a “photographic” image – most meaningful, interesting parts most accurately
- Seen “outside the mind”
- it's impossible to recall images with near perfect accuracy
- Most common in children – language interference? Lost when asked to describe



Stage Model of Memory – Atkinson & Shiffrin (1968)



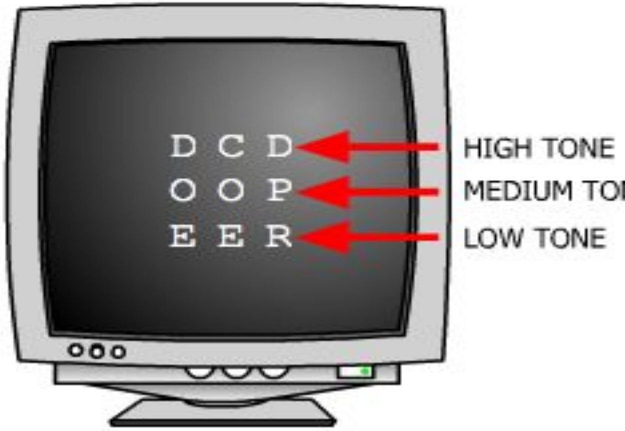
Sensory Memory – records considerable detail for a fraction of a second; no meaning

Working Memory – info temporarily stored for about 30 seconds (longer if rehearsed); meaning assigned

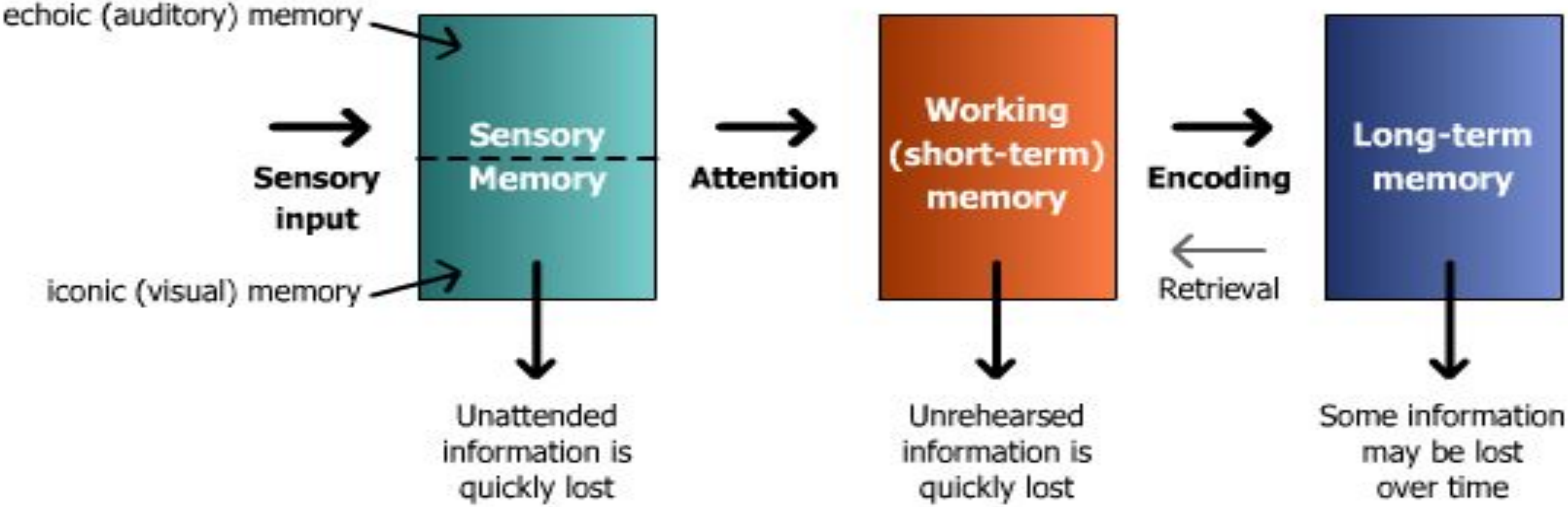
Long-term Memory – permanent, large-capacity storehouse for info. judged important

+ The First Stage: Sensory Memory

- Iconic memory (Sperling): actual capacity of visual sensory memory can be twelve or more items
  - All but three or four visual items disappear before they can enter consciousness (working/short term memory)
  - Duration is about 250 milliseconds!
  - Technique: partial report – recall only one row AFTER a tone was played (so he could prove letters were stored!)



Cued v. free recall comparison


echoic (auditory) memory
Sensory input
iconic (visual) memory
Sensory Memory
Unattended information is quickly lost
Attention
Working (short-term) memory
Unrehearsed information is quickly lost
Encoding
Retrieval
Long-term memory
Some information may be lost over time

- there is a separate *sensory register* for each sense – echoic (auditory), iconic (visual)

The Second Stage: Working Memory (Baddeley – 1992)

- Working memory consists of
  - central executive – coordinates activity of WM; brings new info from SM and LTM
  - phonological loop – holds verbal info; we can "hear" names of numbers as we think about them
  - visuospatial sketchpad – holds visual/spatial info; close your eyes and try to remember what you saw!

What's the magic number???

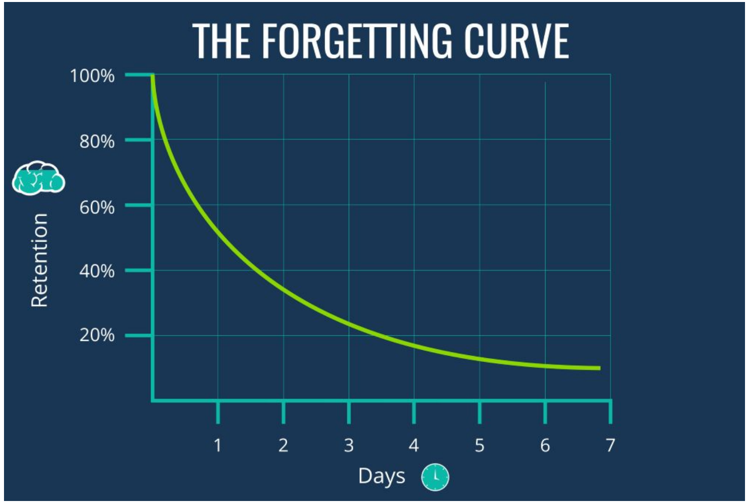
- Not 7 indiv. #s or letters, but 7 CHUNKS of info.

- Chunking – Organizing pieces of information into a smaller number of meaningful units

- Maintenance rehearsal – repetition is used to keep info from fading while in working memory – NOT GOOD for LTM!!

+ Encoding and Storage in Working Memory

- *Elaborative rehearsal* – Process in which information is actively reviewed and related to information already in LTM
  - Without rehearsal info disappears in 20-30 seconds



STM Format or Code

- Info stored in sensory memory is fairly accurate copy of actual sensory stimulus! This detail overwhelms STM

- Encoding – must reduce info and translate it to simplified code

- *Acoustic encoding –* Conversion of information to auditory (sound) patterns in working memory
  - People make errors in recalling strings of letters by confusing letters with other letters with a similar SOUND, not other letters with similar SHAPES!

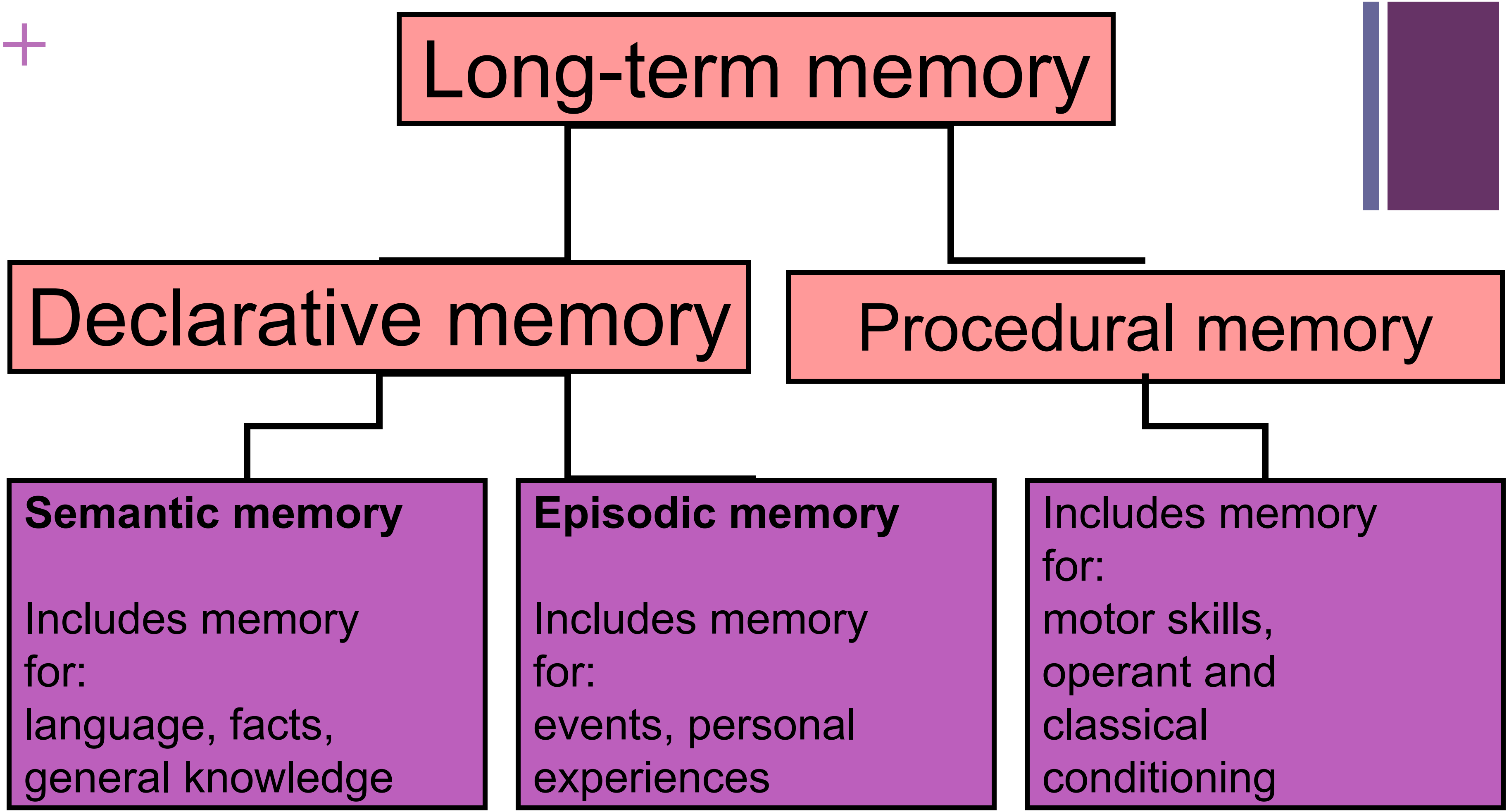
Do we have a better memory for numbers or letters?? Why??

Only two digits share a common vowel sound!

WHY DO WE REMEMBER SOME THINGS BETTER THAN OTHERS?

Why did one group have a much easier time than the other?

- *Levels-of-processing theory* – Explanation for the fact that information that is more thoroughly connected to meaningful terms in LTM will be better remembered (DEEP v. shallow)



Long-term memory

Declarative memory

Procedural memory

Semantic memory

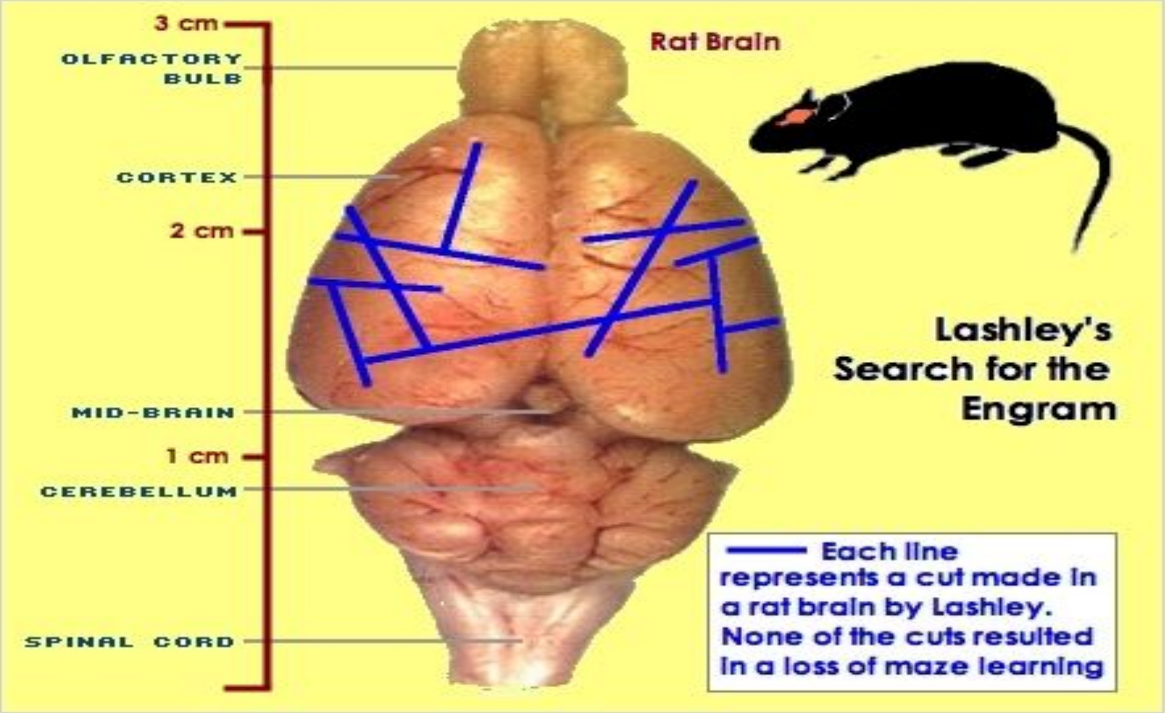
Includes memory
for:
language, facts,
general knowledge

Episodic memory

Includes memory
for:
events, personal
experiences

Includes memory
for:
motor skills,
operant and
classical
conditioning

The search for the engram…


3 cm
OLFACTORY BULB
CORTEX
2 cm
MID-BRAIN
1 cm
CEREBELLUM
SPINAL CORD
Rat Brain
Lashley's Search for the Engram
Each line represents a cut made in a rat brain by Lashley. None of the cuts resulted in a loss of maze learning

Engram – The physical trace of memory (in the brain's neural circuitry or at synaptic level??);

Lashley – memories are nowhere in particular in the brain

What clues does the case of H.M give us about the biological basis of LTM??

Anterograde amnesia – Inability to form memories for new information (removal of hippocampus, amygdala – H.M.); he could form new procedural memories

HM, aged 60: Copyright J, Ogden, "Trouble In Mind" 2012, p.173, OUP, New York

+ Brain circuitry

- Consolidation –
  The process by which short-term memories are changed to long-term memories
  - Hippocampus to cortex
- Amygdala – strengthens memories with strong emotional associations (PTSD)

“flashbulb” memories – vivid episodic memories of

Memories, Neurons & Synapses

- **Long term potentiation –** biochemical changes in nerve circuits in the brain
- **Retrograde amnesia** – Inability to remember information previously stored in memory (blow

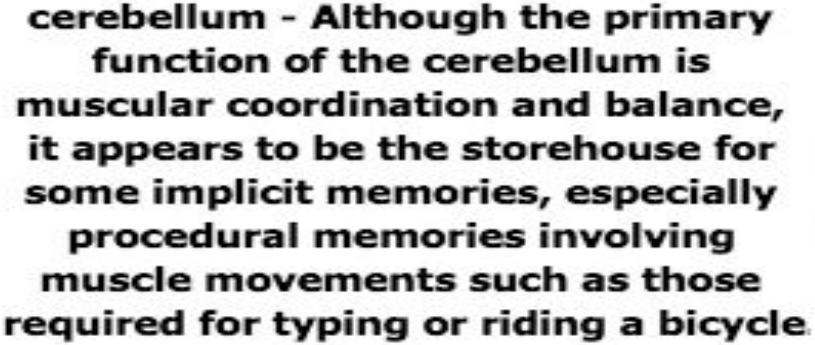
How Do We Retrieve Memories?

- Implicit memory – Memory that was not deliberately learned or of which you have no conscious awareness (*can affect behavior/mental processes without becoming fully conscious*)
- Explicit memory – Memory that has been processed with attention and can be consciously recalled

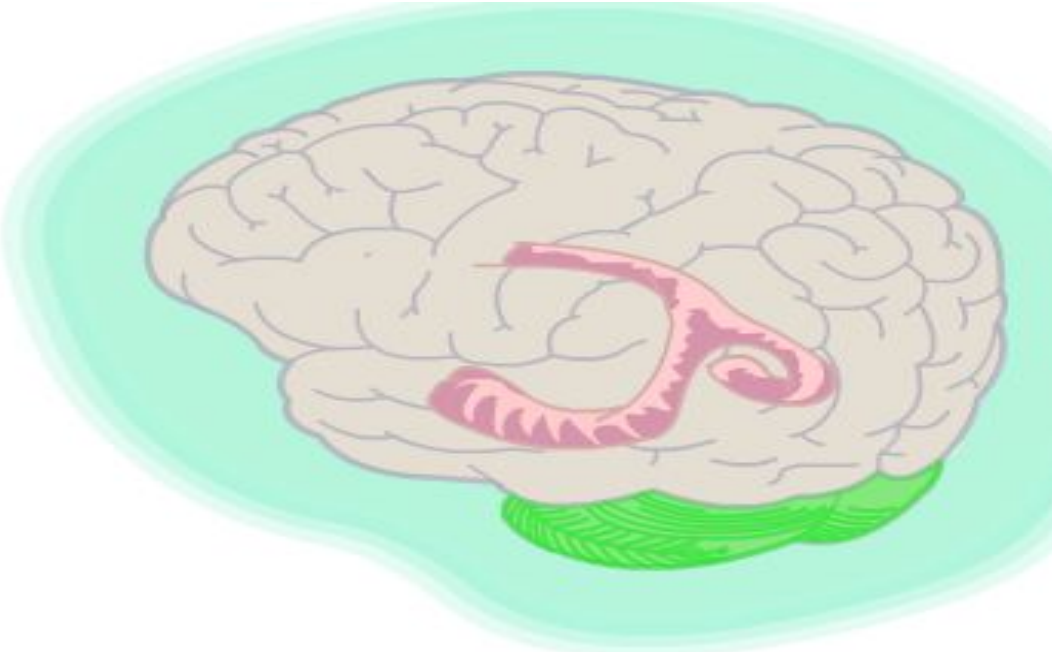
Type "Every red pepper is tantalizing" – then, recall which 10 letters appear in the top row of the keyboard?

Caps Lock
Shift
Enter
Ctrl
Alt
Alt
Ctrl

The cerebellum – storehouse for some implicit (especially procedural) memories

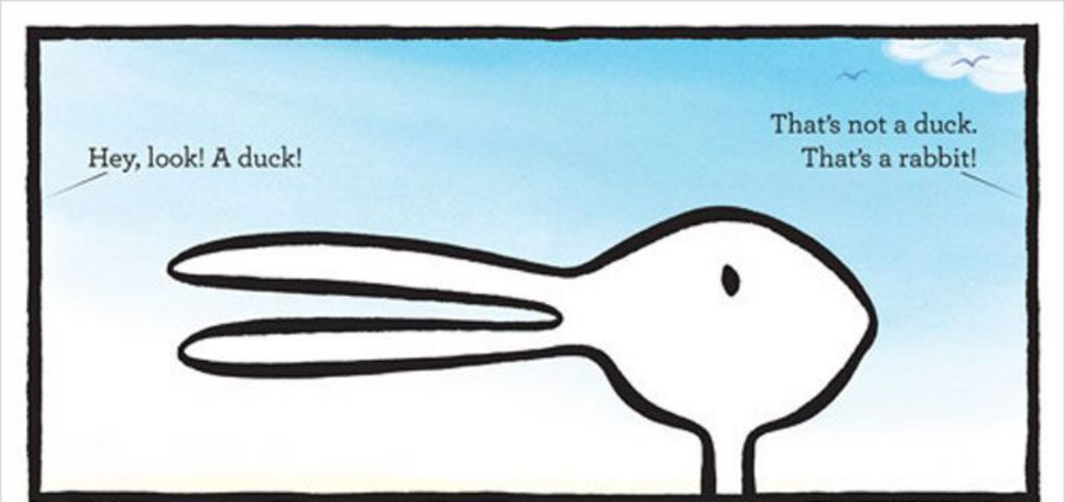


cerebellum - Although the primary function of the cerebellum is muscular coordination and balance, it appears to be the storehouse for some implicit memories, especially procedural memories involving muscle movements such as those required for typing or riding a bicycle.



Retrieval Cues

- *Priming* –
  Technique for retrieving implicit memories by providing cues that stimulate a memory without awareness of the connection between the cue and the retrieved memory


Hey, look! A duck!
That's not a duck.
That's a rabbit!

Recall and Recognition – 2 ways of retrieving explicit memories

- *Recall* – Technique for retrieving explicit memories in which one must reproduce previously presented information (essay question)

- *Recognition* – Technique for retrieving explicit memories in which one must identify present stimuli as having been previously presented (multiple choice question)

Other Factors Affecting Retrieval

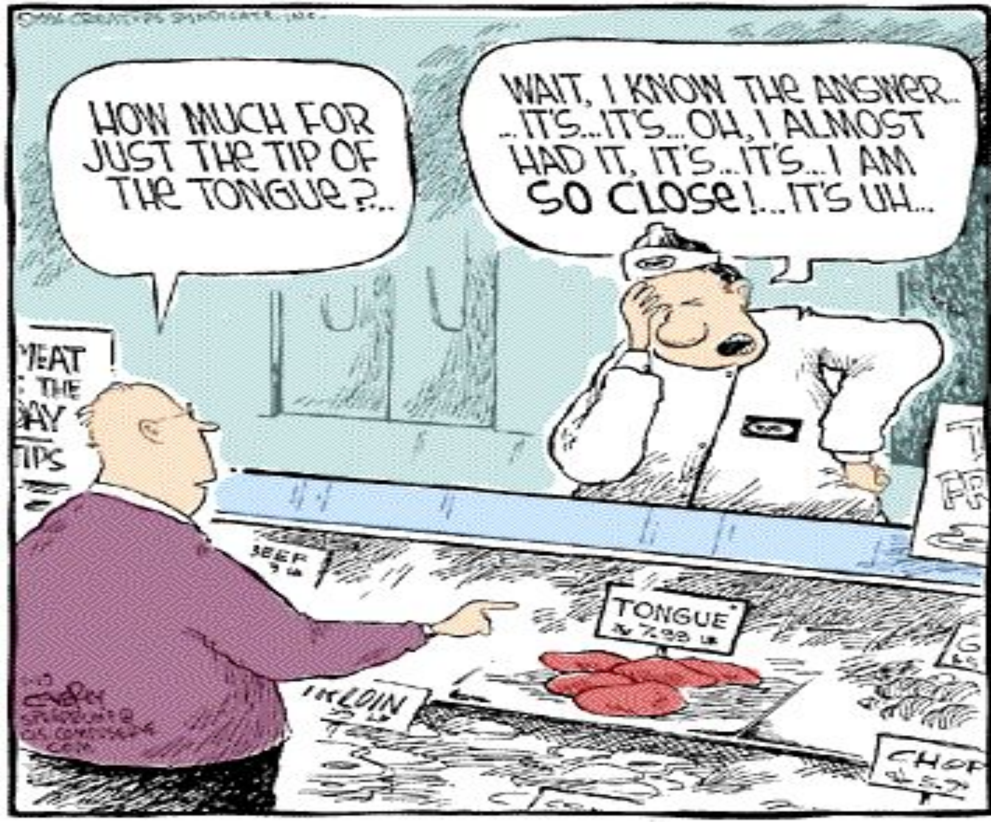
- *Encoding specificity principle* – The more closely the retrieval clues match the form in which the information was encoded, the better the information will be remembered

CONTEXT MATTERS!

Other Factors Affecting Retrieval

- *Mood congruent memory*– A memory process that selectively retrieves memories that match one's mood

- *TOT (tip of the tongue) phenomenon* – The inability to recall a word while knowing that it is in memory


HOW MUCH FOR JUST THE TIP OF THE TONGUE?..
WAIT, I KNOW THE ANSWER.. ..IT'S..IT'S..OH, I ALMOST HAD IT, IT'S..IT'S..I AM SO CLOSE!..IT'S UH..
TONGUE
BEEF

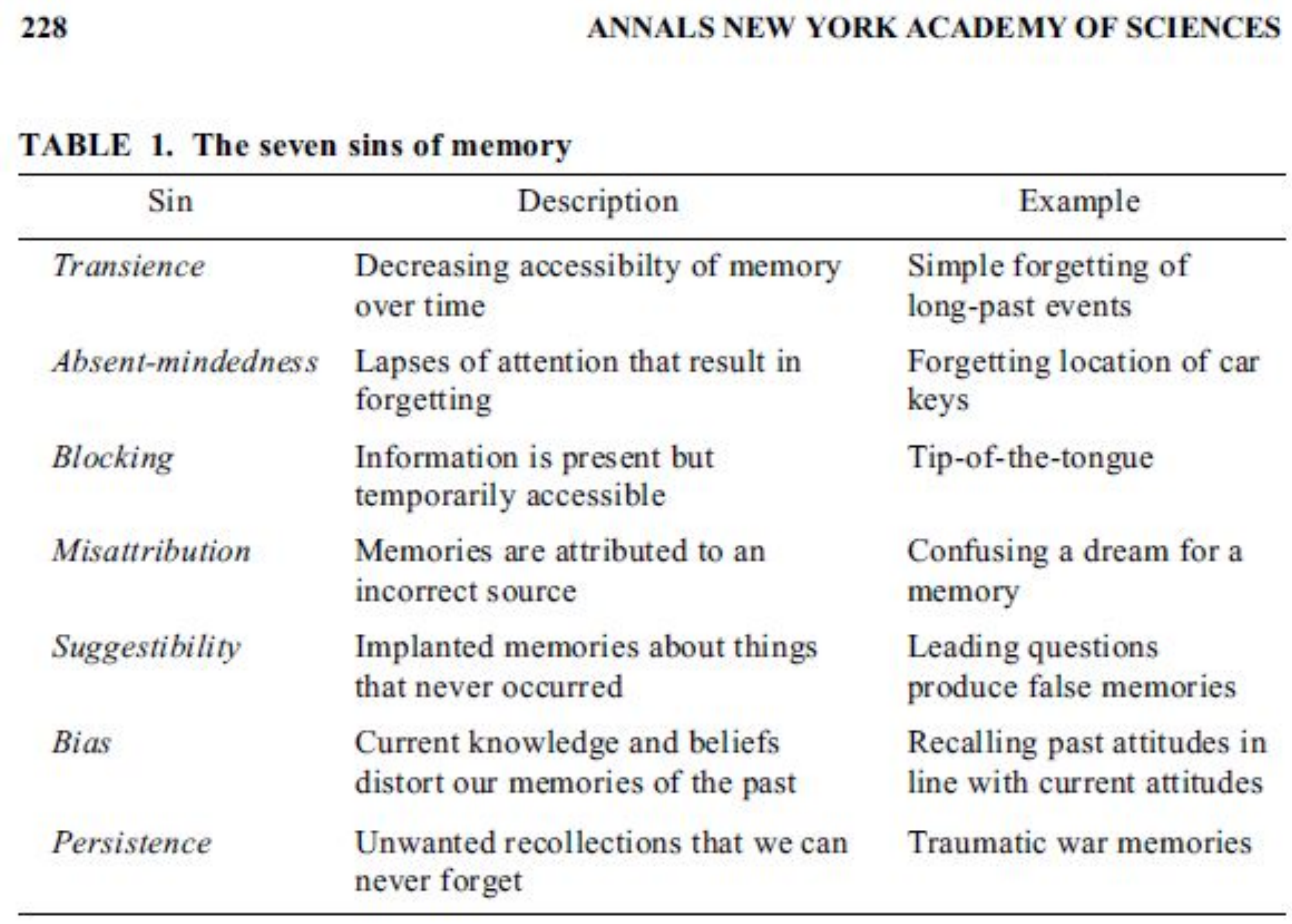
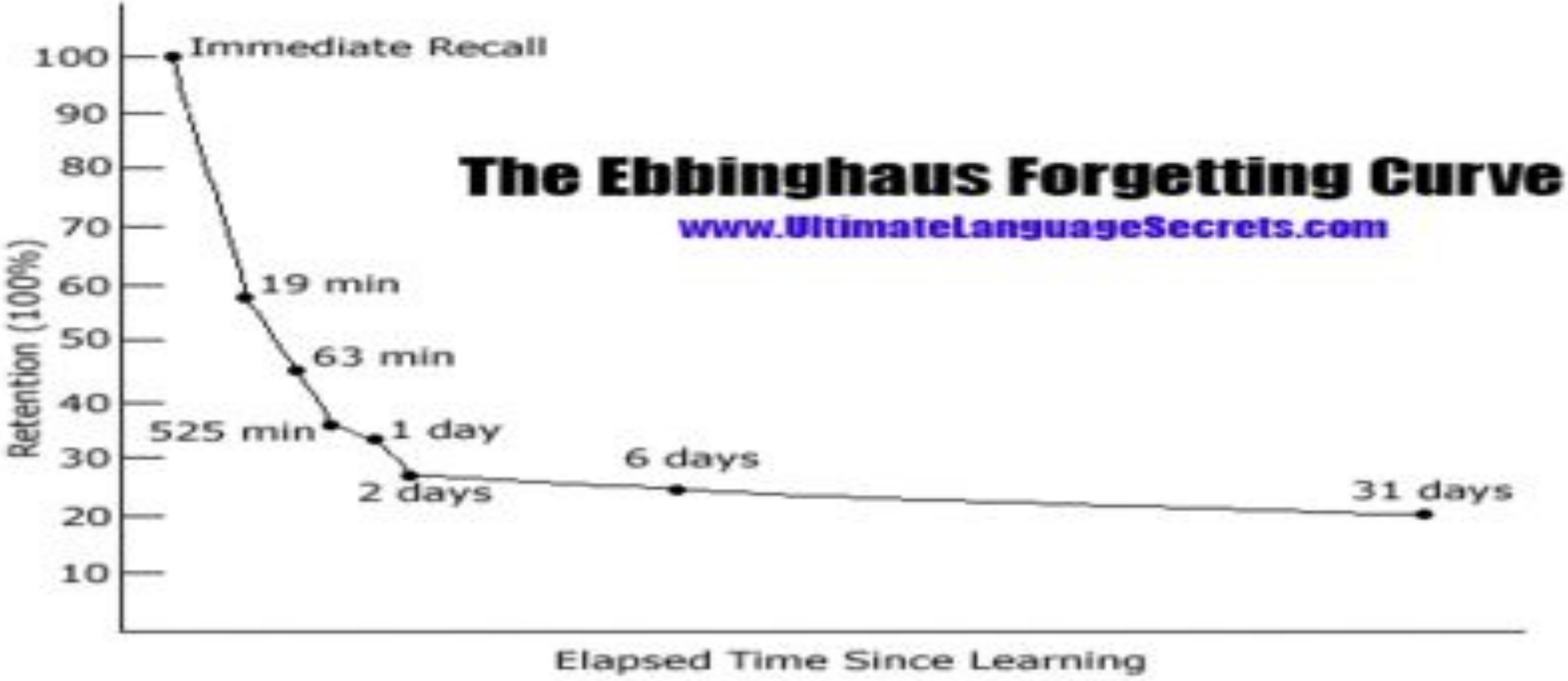


TABLE 1. The seven sins of memory

Sin	Description	Example
Transience	Decreasing accessibilty of memory over time	Simple forgetting of long-past events
Absent-mindedness	Lapses of attention that result in forgetting	Forgetting location of car keys
Blocking	Information is present but temporarily accessible	Tip-of-the-tongue
Misattribution	Memories are attributed to an incorrect source	Confusing a dream for a memory
Suggestibility	Implanted memories about things that never occurred	Leading questions produce false memories
Bias	Current knowledge and beliefs distort our memories of the past	Recalling past attitudes in line with current attitudes
Persistence	Unwanted recollections that we can never forget	Traumatic war memories

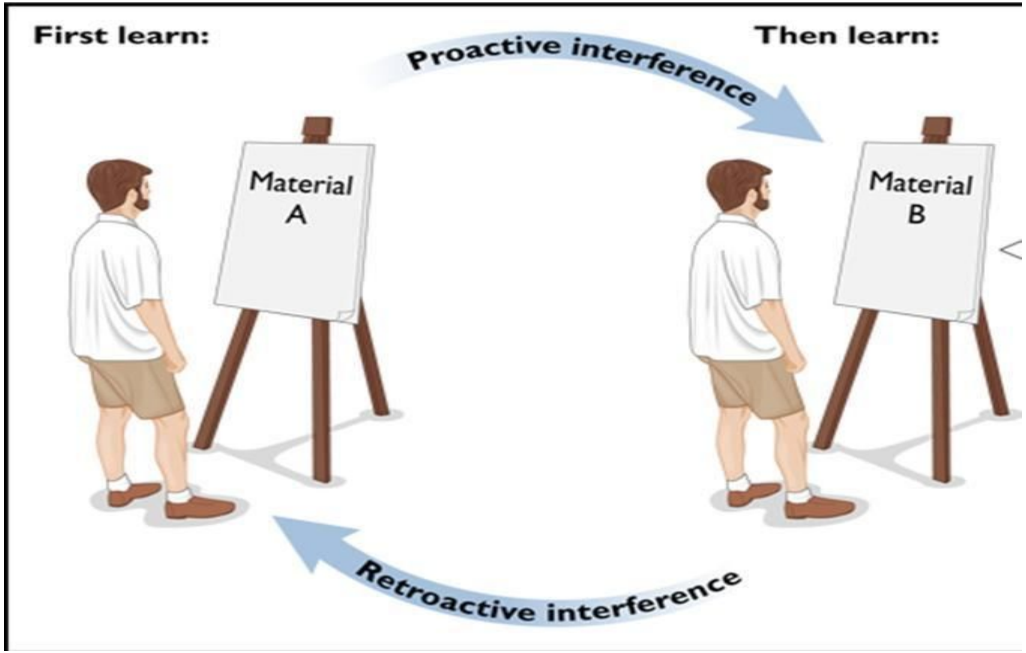
Ebbinghaus's Forgetting Curve



- Greatest amount of forgetting occurs after the first day of learning!

Blocking

- when an item in memory cannot be accessed or retrieved
  - Proactive interference
  - Retroactive interference
  - Serial position effect (primacy v. recency)


First learn:
Then learn:
Proactive interference
Material A
Material B
Retroactive interference

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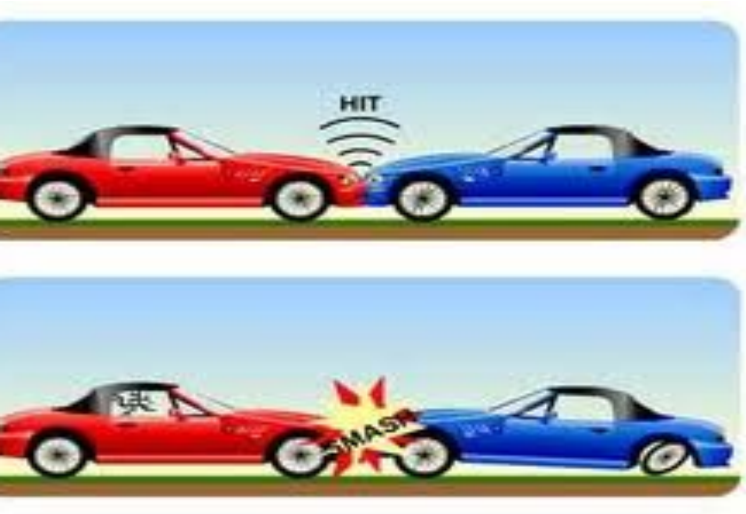
Serial Position Effect

- We tend to forget the things in the middle of a list
- Interference from both ends = We remember less from the middle!
- Primacy – remembering first items in series**
- Recency – remembering last items in series**

**we're likely to remember first/last items!

Elizabeth Loftus (1974)



- Framing (leading questions) greatly influences memory for events
- 'How fast were the cars going when they ***smashed*** into each other?,'
- 'How fast were the cars going when they ***bumped*** into each other?' (was there glass at the scene??)

"How fast was the white sports car going when it passed the barn while traveling along the country road?"

"How fast was the white sports car going while traveling along the country road?"

- **Misinformation effect -** casually mentioning a nonexistent object during the course of questioning can increase the likelihood that a person will later report having seen that nonexistent object.

17 percent of the students whose question mentioned the nonexistent barn claimed to have seen it later on.

less than 3 percent of control subjects recalled a barn

- **Constructive memory** – created/fabricated memories
- **confabulation** – unconscious memory distortion
- **Leveling** – story becomes shorter; nondistinctive details are left out
- **Sharpening** – distinctive details (calibre of gun, gender of pilot – for female students) are retained
- **Influence of cognitive schemas** – tellers are encoding semantically, so their retelling is likely to be influenced by their schemas (ie. Pilots, flight attendants, hijackers)

Improving Memory with Mnemonics

- *Mnemonics* – Techniques for improving memory, especially by making connections between new material and information already in long-term memory
- Mnemonic strategies include
  - Method of loci ("memory palace")
  - Natural language mediators - using language (sentences, sayings, little stories) to organize memory and improve retrieval

(video 1)

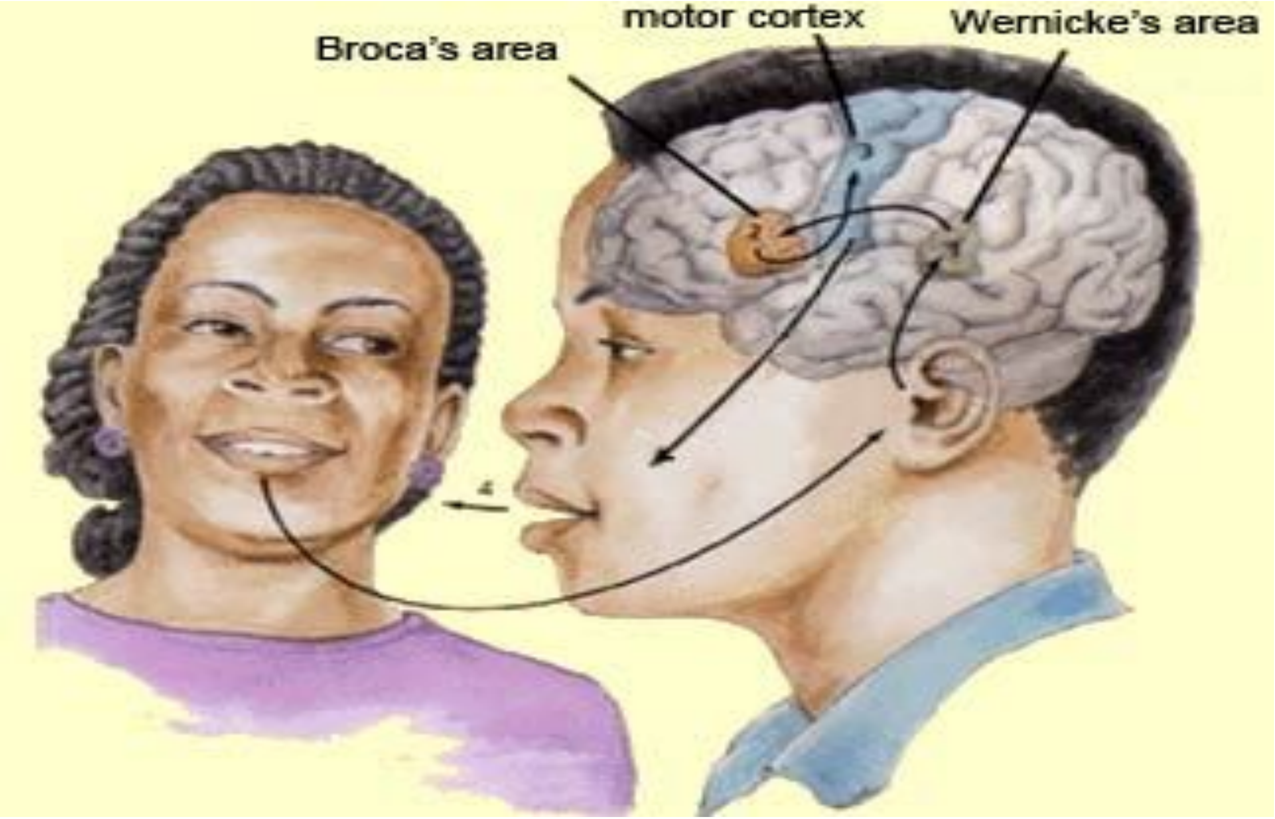
video 2 – TED

Nature Approach

- *Innateness theory of language* –
  we have an innate (inborn) ability to learn vocabulary and grammar

- *Language acquisition device (LAD)* –
  Structures in the brain innately programmed with fundamental rules of grammar (ie. Nouns, verbs, subject, objects – UNIVERSAL GRAMMAR)

Which hemisphere specializes in language? What 2 parts of the cortex are involved in speech comprehension and production??


motor cortex
Broca's area
Wernicke's area

APHASIA:

Broca's (inability to produce language) v. Wernicke's (inability to

Support for Chomsky

ACROSS CULTURES:

- Lang. learning stages similar; "listening rules" for perceiving lang. (beg., ending of words, stressed syllables)
- Stages occur at similar ages
- Deaf children develop lang. with similar sentence structure; begin manual babbling @ same age hearing babies begin vocal babbling

Nurture Approach (Skinner)

- Language is learned through conditioning, association, imitation, reinforcement
  - associate sounds with objects, actions and events & by imitating others
  - Adults reinforce correct speech

- Arguments against Skinner
  - Lang. is acquired rapidly – can't ALL be learned
  - Infinite # of sentences in lang. – can't all be learned by imitation
  - Children make errors that adults don't make; overregularization – applying rules of grammar too widely – "Billy hitted me" "I breaked the lamp"
  - adults don't consistently correct syntax

The Story of Genie

Critical period hypothesis (CPH) – Eric Lenneberg - if children are not exposed to 1st language before a certain age, they will be unable to acquire language.

- Before 5 – critical period; progressively declines after

Stages of Language Development

- The babbling stage (6 months)
- The one-word stage - HOLOPHRASE (1 year)
- The “naming explosion” (18 mos)
- The two-word stage (2 years)
- Telegraphic speech (short, simple sentences)

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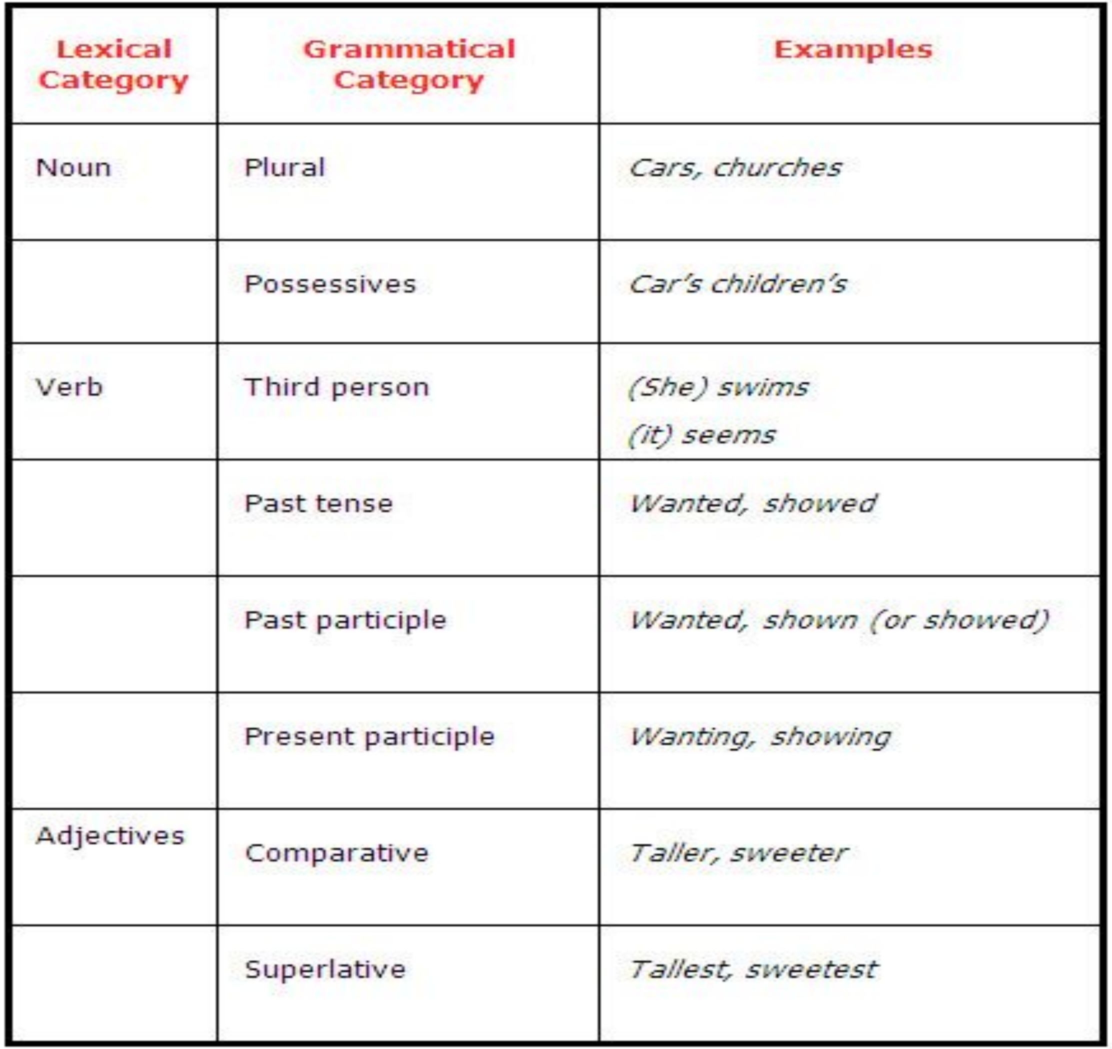
Learning Grammar (2+ yrs)

- Children then begin learning grammar (rules of the language):
  - using modifiers (adjectives & adverbs) & articles (the, those)
  - English subject-verb-object order
  - Using morphemes – smallest meaningful units that make up words and change meaning – show tense, possession & plurality; phonemes – smallest unit of sound in a word

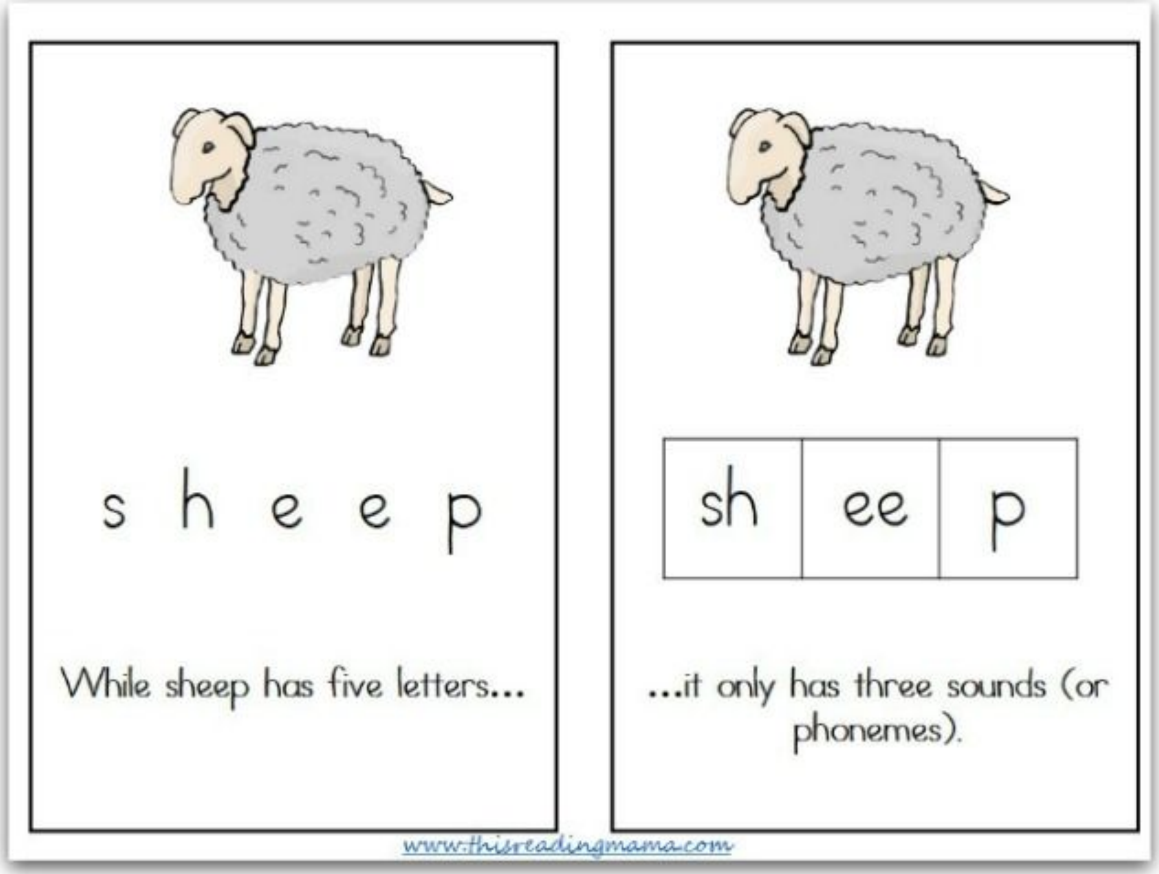
Morphemes

- Noun + -FUL = Adjective
- Adjective + -LY = Adverb
- Verb + -MENT = Noun
- Verb + -ER = Noun
- Adjective + -EN = Verb
- Noun + -EN = Verb



Lexical Category	Grammatical Category	Examples
Noun	Plural	*Cars, churches*
	Possessives	*Car's children's*
Verb	Third person	*(She) swims* *(it) seems*
	Past tense	*Wanted, showed*
	Past participle	*Wanted, shown (or showed)*
	Present participle	*Wanting, showing*
Adjectives	Comparative	*Taller, sweeter*
	Superlative	*Tallest, sweetest*

Phonemes



s h e e p

While sheep has five letters...

sh	ee	p

...it only has three sounds (or phonemes).

www.thisreadingmama.com

Syntax –Sentence Structure

Syntax - the arrangement of words and phrases to create well-formed sentences in a language.

- Surface structure: simply reading words (like shallow processing).
- Deep structure: looking for meaning in word combinations (like deep processing).

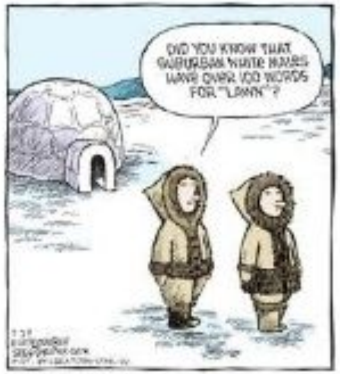
Semantics - meaning in language

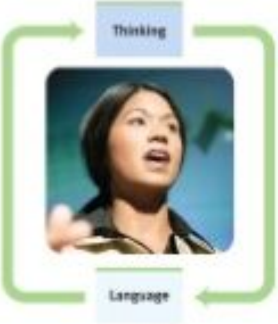
"Pigs fly supremely."

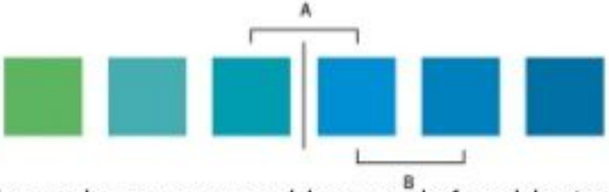
Sapir-Whorf Hypothesis

Thinking and Language

- **Linguistic Determinism:** Whorf (1956) suggested **that language determines the way we think**. For example, he noted that the Hopi people do not have the past tense for verbs. Therefore, the Hopi cannot think readily about the past.
- Some cultures count: 1, 2, many…


DID YOU KNOW THAT SUBURBAN WHITE MALES HAVE OVER 100 WORDS FOR "LAWN"?


Thinking
Language



When a language provides words for objects or events, we can think about these objects more clearly and remember them. It is easier to think about two colors with two different names (A) than colors with the same name (B)

Criticisms of Sapir-Whorf

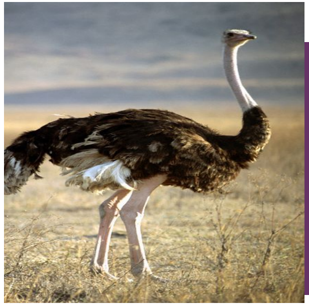
- It is just as possible that ‘reality creates language’ as ‘language creates reality’
- There is evidence from animals and babies that thought can exist without language. Did early humans ‘think’ before they invented language?
- People think in many different ways. Albert Einstein claimed he thought in ‘images’ and many autistic people think in ways that are very alien to others.
- Have you ever had a really good thought but then found it really difficult to put into words? Does this therefore suggest that our thoughts exist separately to language to some degree at least?

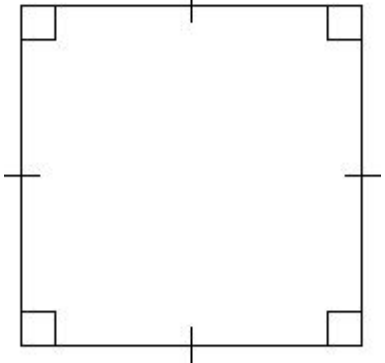
Other language skills:

- **Metalinguistic awareness** – recognize ambiguity, sarcasm, innuendo – learn to think about how language is used
  - Ambiguous lang. has confusing/multiple meaning: "Avoid biting dogs"
- Social rules
  - Take turns talking/listening
  - Body language, intonation, facial expressi
  - Take perspective of listener
- Expressing abstract meaning
  - "dream" "hope" "believe"

NOT SURE IF SARCASM
OR SERIOUS
DIYLOL.C

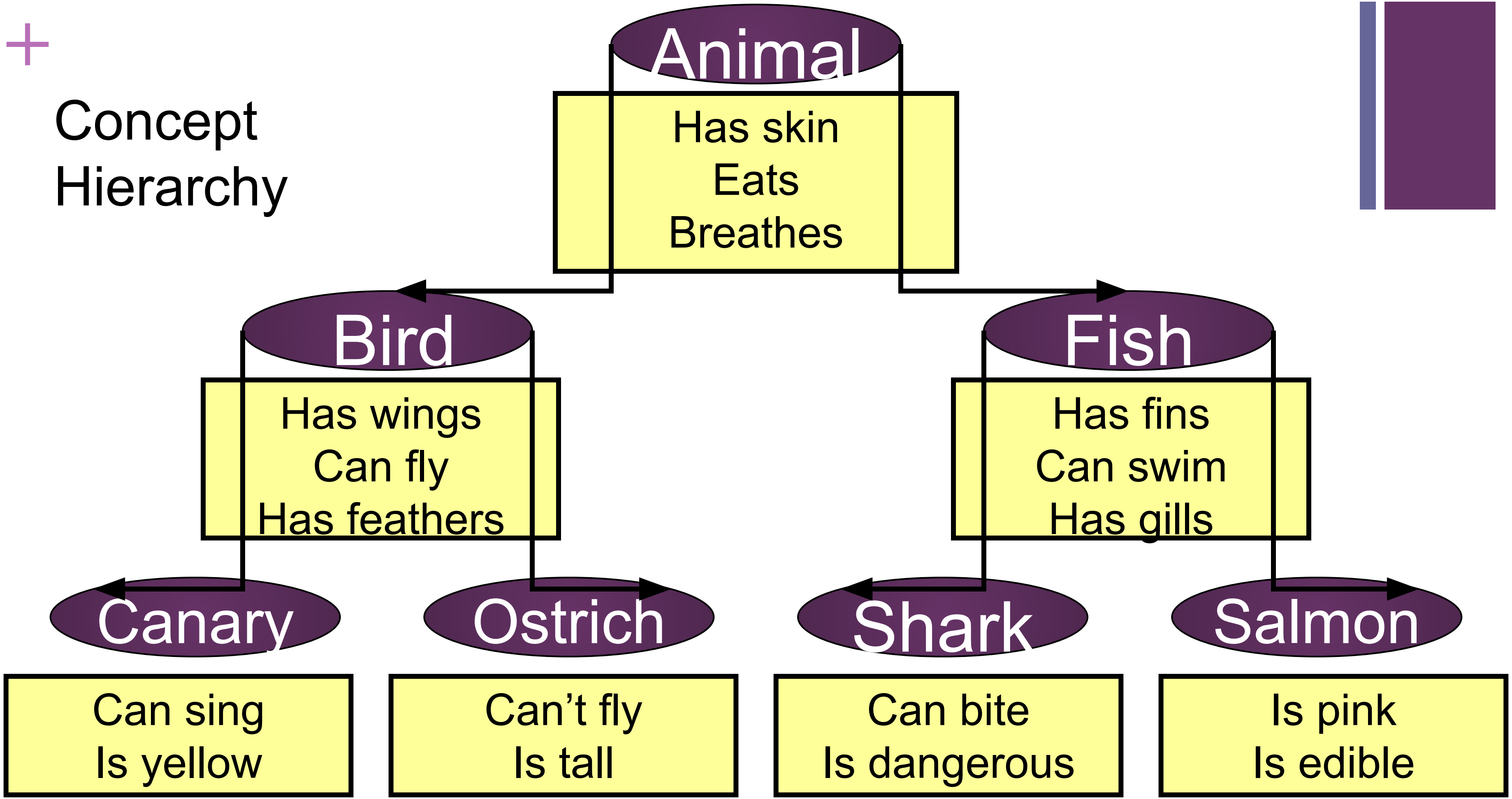
Concepts





- Mental representations of categories of items or ideas, based on experience
  - *Natural concepts* – mental representations drawn from experience (mental prototypes)
  - *Artificial concepts* are defined by rules
- We organize much of our declarative memories into *concept hierarchies*

Concept Hierarchy


Animal
Has skin
Eats
Breathes

Bird
Has wings
Can fly
Has feathers

Fish
Has fins
Can swim
Has gills

Canary
Can sing
Is yellow

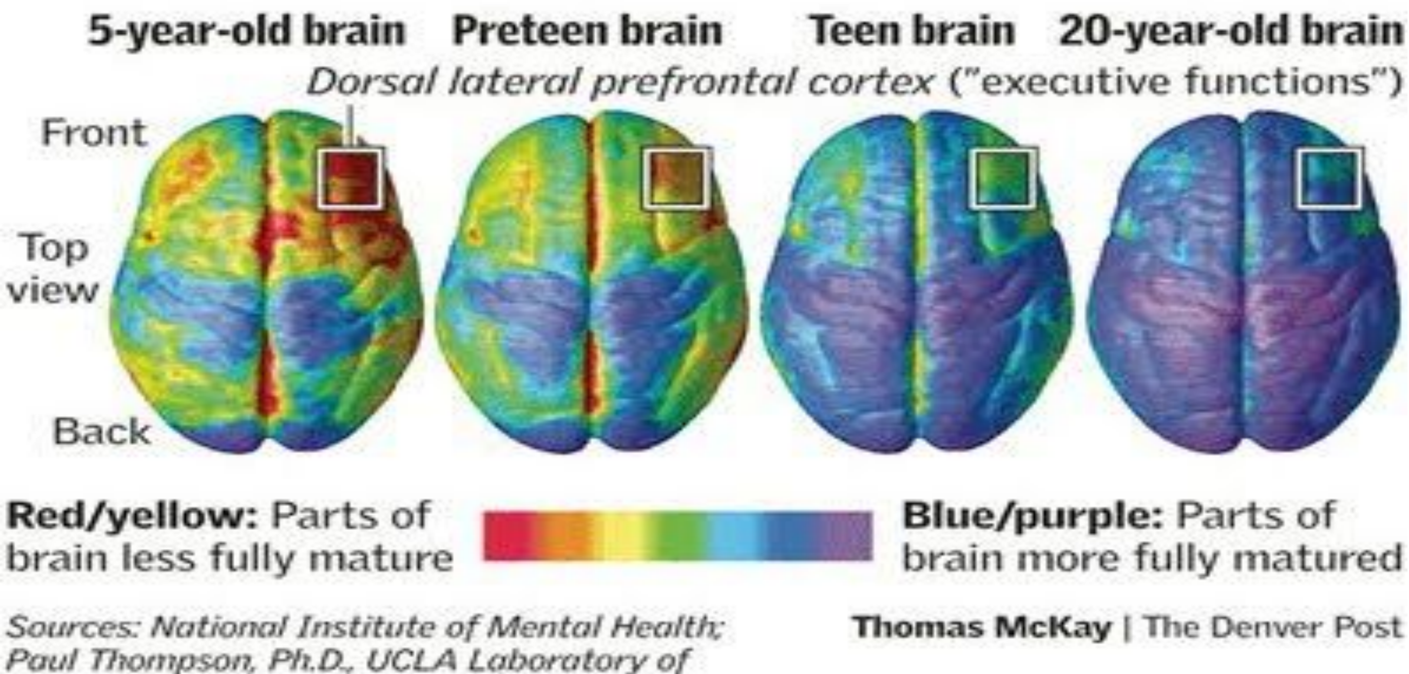
Ostrich
Can't fly
Is tall

Shark
Can bite
Is dangerous

Salmon
Is pink
Is edible

+ Thought and the Brain

- *Event-related potentials* –
  Brain waves shown on an EEG in response to stimulation; Cerebral Cortex – where higher order thinking takes place!!


Dorsal lateral prefrontal cortex ("executive functions")
Front
Top view
Back

5-year-old brain **Preteen brain** **Teen brain** **20-year-old brain**

Red/yellow: Parts of brain less fully mature

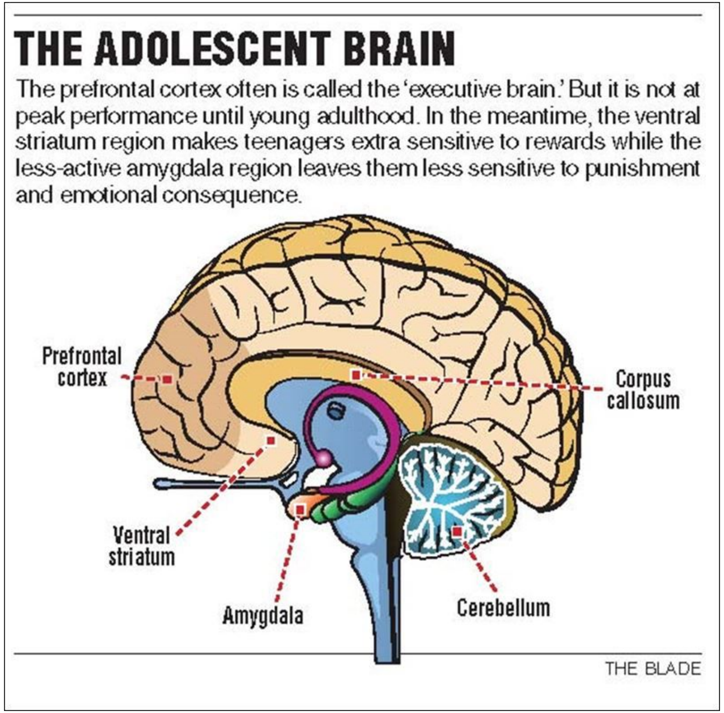
Blue/purple: Parts of brain more fully matured

Sources: National Institute of Mental Health; Paul Thompson, Ph.D., UCLA Laboratory of

Thomas McKay | The Denver Post

Pre-Frontal Cortex

- Focus
- Organization
- Recognizing potential consequences
- Balancing short term rewards with long-term goals (motivation)
- Adjusting and controlling behavior
- Impulse control
- Emotion control
- Prioritization



THE ADOLESCENT BRAIN

The prefrontal cortex often is called the 'executive brain.' But it is not at peak performance until young adulthood. In the meantime, the ventral striatum region makes teenagers extra sensitive to rewards while the less-active amygdala region leaves them less sensitive to punishment and emotional consequence.

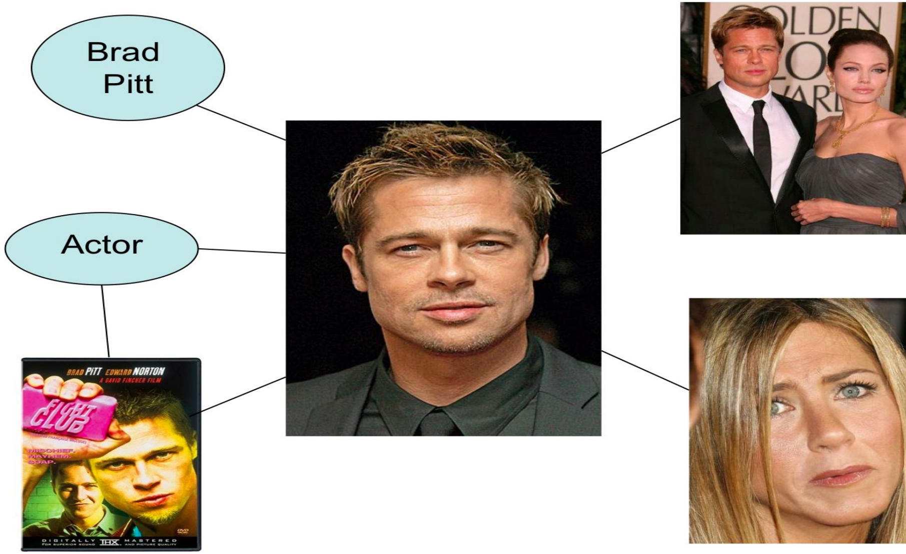
Prefrontal cortex
Corpus callosum
Ventral striatum
Amygdala
Cerebellum

THE BLADE

**teens are extra sensitive to rewards; under active amygdala = less sensitive to emotional consequence

+ Schemas

- A knowledge cluster or general framework that provides expectations about topics, events, objects, people, and situations in one's life
- influential in stereotyping – accessing a schema about how one group supposedly acts and using it to predict their behavior

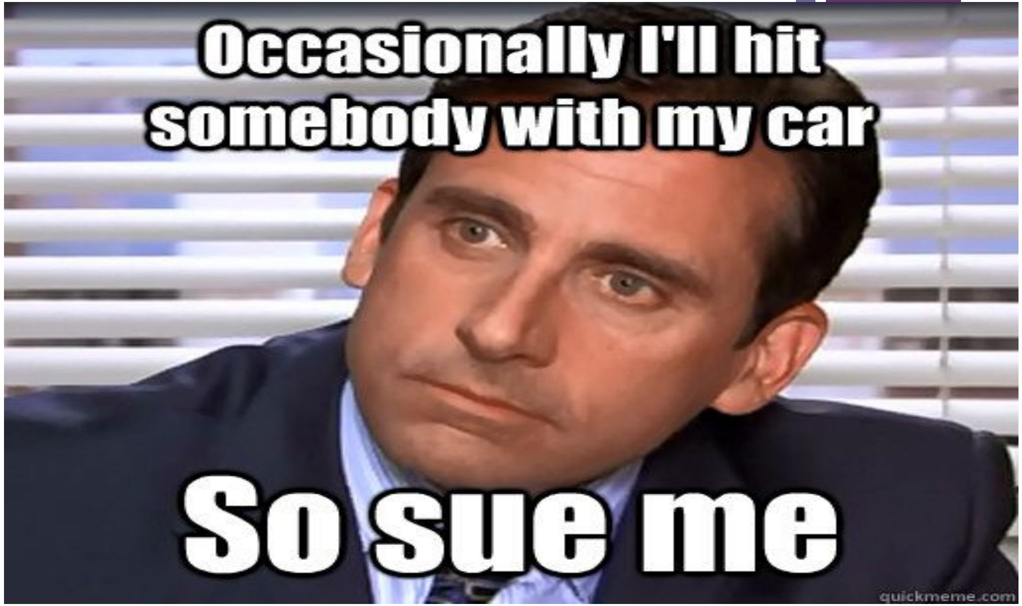

Brad Pitt
Actor
BRAD PITT EDWARD NORTON
FIGHT CLUB

Assimilation & Accommodation

- Assimilation – fitting new information into existing schemas – ex. Boo calls Sully "Kitty"
- Accommodation - changing schemas to adjust/accommodate for new information- ex. Boo adjusts her schema for cat – not huge, or blue, no horns; creates new schema for monsters

Script

- A cluster of knowledge about sequences of events and actions expected to occur in particular settings
- Conflicting scripts = awkwardness


Occasionally I'll hit somebody with my car
So sue me
quickmeme.com

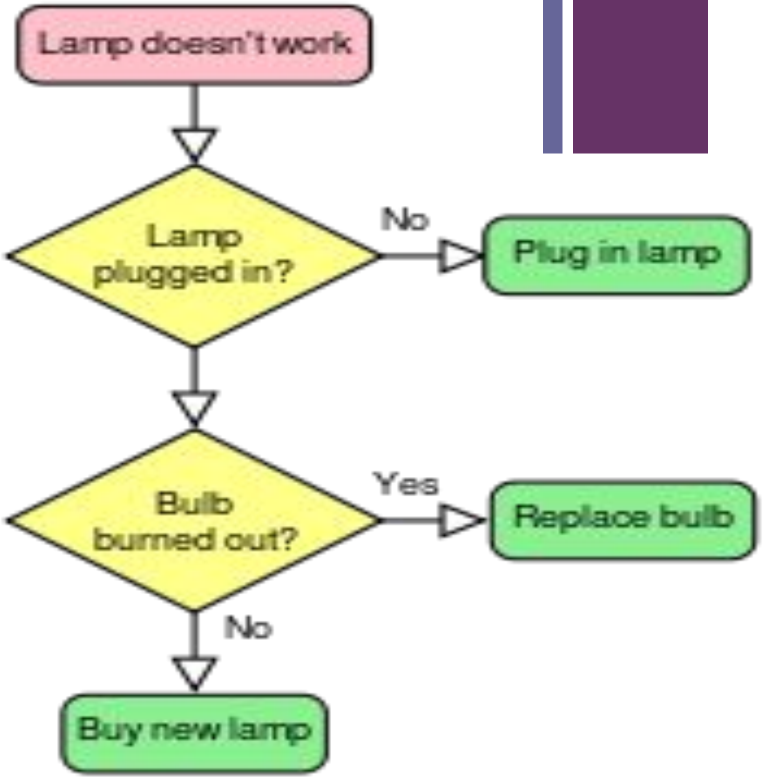
Problem Solving

- Good problem solvers are skilled at
  - Identifying the problem
  - Selecting a strategy

Selecting a Strategy

- *Algorithms* –
  Problem-solving procedures or formulas that guarantee a correct outcome if correctly applied

- *Heuristics* –
  shortcuts to solve complex mental tasks; they do not guarantee a correct solution; can lead to biases
  - Availability heuristic
  - Representativeness heuristic

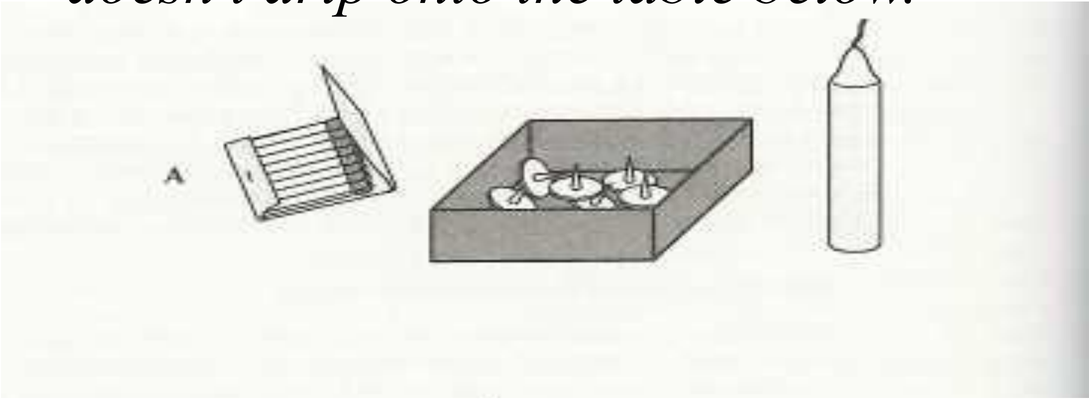

Lamp doesn't work
Lamp plugged in?
No
Plug in lamp
Bulb burned out?
Yes
Replace bulb
No
Buy new lamp

+ Obstacles to Problem Solving

- *Mental set* –
  Tendency to respond to a new problem in the manner used for a previous problem

- *Functional fixedness* –
  Inability to perceive a new use for an object associated with a different purpose

Attach the candle to the wall so it doesn't drip onto the table below.



Overcoming functional

Judging and Making Decisions

Confirmation Bias

Hindsight Bias

Anchoring Bias

Representativeness Bias

Availability Bias

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Judging and Making Decisions

Confirmation Bias

Hindsight Bias

Anchoring Bias

Representativeness Bias

Availability Bias

- Ignoring or finding fault with information that does not fit our opinions, and seeking information with which we agree

Judging and Making Decisions

Confirmation Bias

Hindsight Bias

Anchoring Bias

Representativeness Bias

Availability Bias

- Tendency, after learning about an event, to believe that one could have predicted the event in advance

I knew you were trouble when you walked in
Nope. Hindsight Bias
ICANHASCHEEZBURGER.COM

Judging and Making Decisions

Confirmation Bias

Hindsight Bias

Anchoring Bias

Representativeness Bias

Availability Bias

- Faulty heuristic caused by basing (anchoring) an estimate on a completely unrelated quantity – we "anchor" answers based on first impressions

1 x 2 x 3 x 4 x 5 x 6 x 7 x 8=

Median estimate: 512

8 x 7 x 6 x 5 x 4 x 3 x 2 x 1=

Median estimate: 2,250

+ Judging and Making Decisions

- Confirmation Bias
- Hindsight Bias
- Anchoring Bias
- ***Representativeness Bias***
- Availability Bias

- Faulty heuristic strategy based on presumption that, once a person or event is categorized, it shares all features of other members in that category

Judging and Making Decisions

Confirmation Bias

Hindsight Bias

Anchoring Bias

Representativeness Bias

Availability Bias

- Faulty heuristic strategy that estimates probabilities based on information that can be recalled from personal experience

Problem-Solving and Creativity

- **Recombination** – mental rearrangement of elements of problem
  - Ex: word scramble, rearranging same notes to make new sound/song

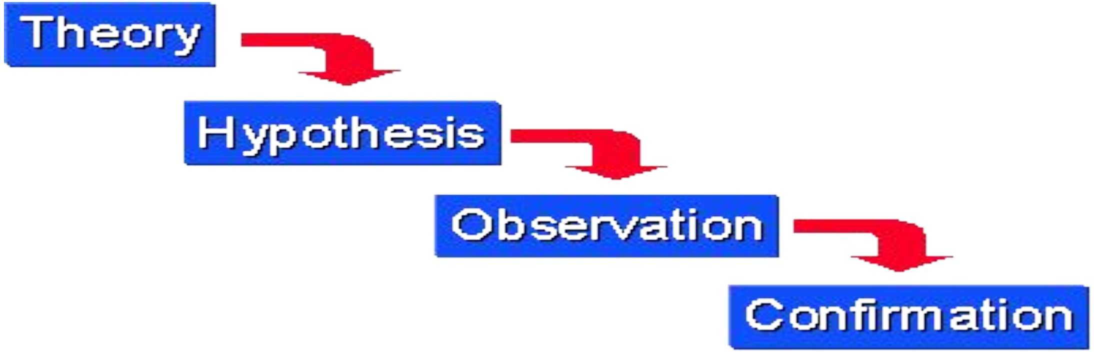
- **Insight** – a sudden solution comes to you suddenly when you have previously pondered the problem for a while
  - Ex: “oh” or “aha” experiences

+

- **Incubation effect** – when we arrive at a solution to a problem that we had not consciously been working on
  - Reason psychologists recommend taking a break from work or difficult problem

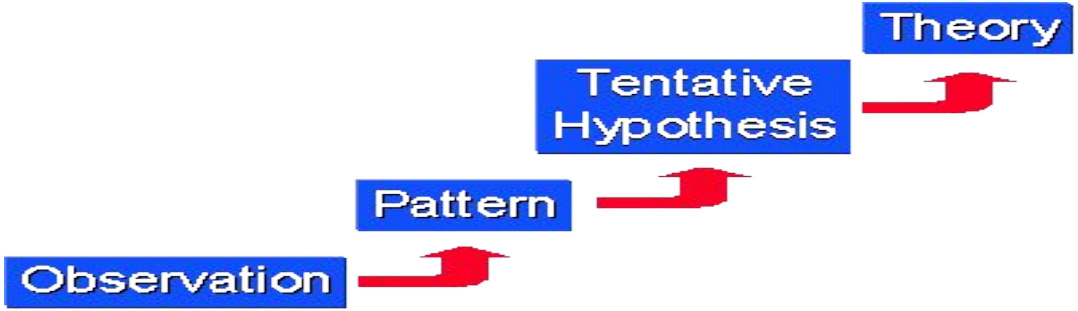
Deductive reasoning

- from the general to the specific (aka “top-down” approach). If the original proposition is true, conclusion is true.
  - All birds have wings.
  - A sparrow is a bird.
  - Therefore, a sparrow has wings.


Theory
Hypothesis
Observation
Confirmation

Inductive reasoning

- specific to the general (aka "bottom-up" approach). Just because original proposition is true, does not mean conclusion is true.
  - Britney and Emily are soccer players.
  - Britney and Emily get good grades.
  - Therefore, all soccer players get good grades.


Theory
Tentative Hypothesis
Pattern
Observation

Chapter 8: Emotion, Motivation & Stress

Crash Course: Emotion, Stress & Health

Crash Course: The Power of Motivation

Quizlet

What Is Emotion?

Four-part process

1. physiological arousal – physical response; sympathetic nervous system
2. cognitive interpretation – conscious/unconscious recognition of feelings – can drive arousal
3. subjective feelings – brain senses arousal; Memories of past situations retrieved
4. behavioral expression – emotions can produce behavior and act as motives bc they organize and direct our behavior

Emotion = physical and mental arousal

Motivation = how arousal becomes action!

Cultural Universals in Emotional Expression (Paul Ekman)

- People everywhere can recognize at least seven basic emotions: sadness, fear, anger, disgust, contempt, happiness and surprise
- Display rules (Permissible ways of displaying emotions in a particular society) differ across cultures

The Neuroscience of Emotion

- 2 emotion processing systems:
  - Fast response – unconscious, automatic, screens incoming stimuli; innate sensitivity to certain cues (classical conditioning – ex. kid who fears Dr.); linked to implicit memory
  - Conscious processing system – creates fear that grows when we anticipate doing something that makes us nervous; linked to explicit memory
    - Ex. speaking in front of class

** the brain has emotion-related circuits, but no “emotion center”**

The Neuroscience of Emotion

- The biological mechanisms at work behind our emotions include:
    - The limbic system
    - The reticular formation
    - The cerebral cortex (conscious)
    - The autonomic nervous system
    - Hormones

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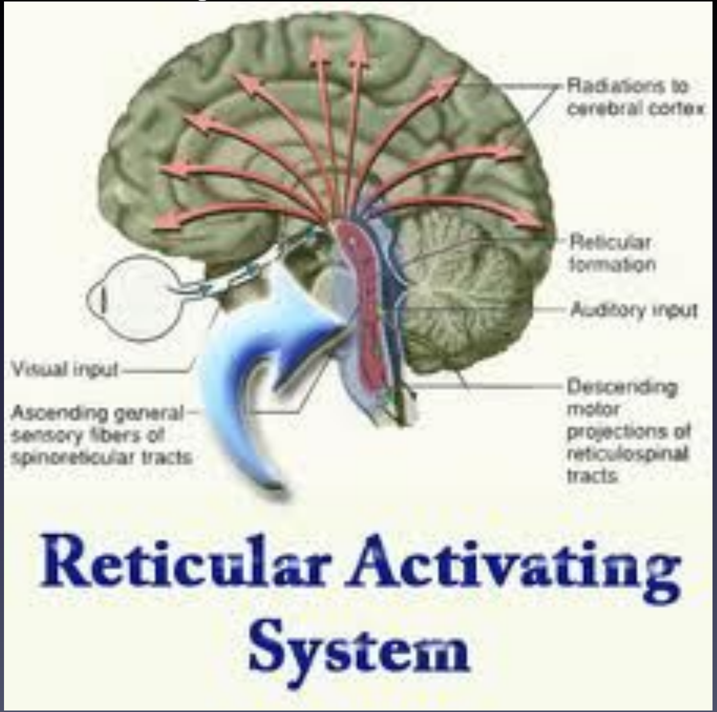
Reticular Formation (Activating System)

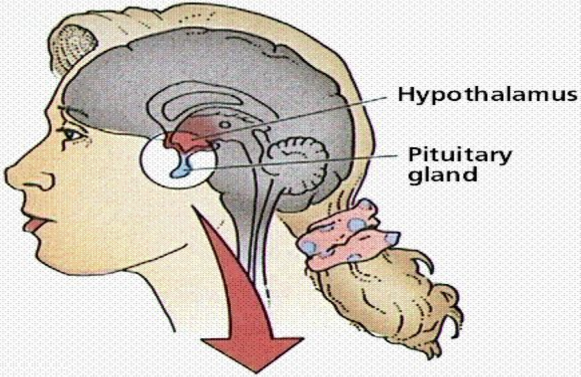
C2000
1
2
3
4
5
6
0
7
8
9
ON
PROG
CLEAR
ENTER

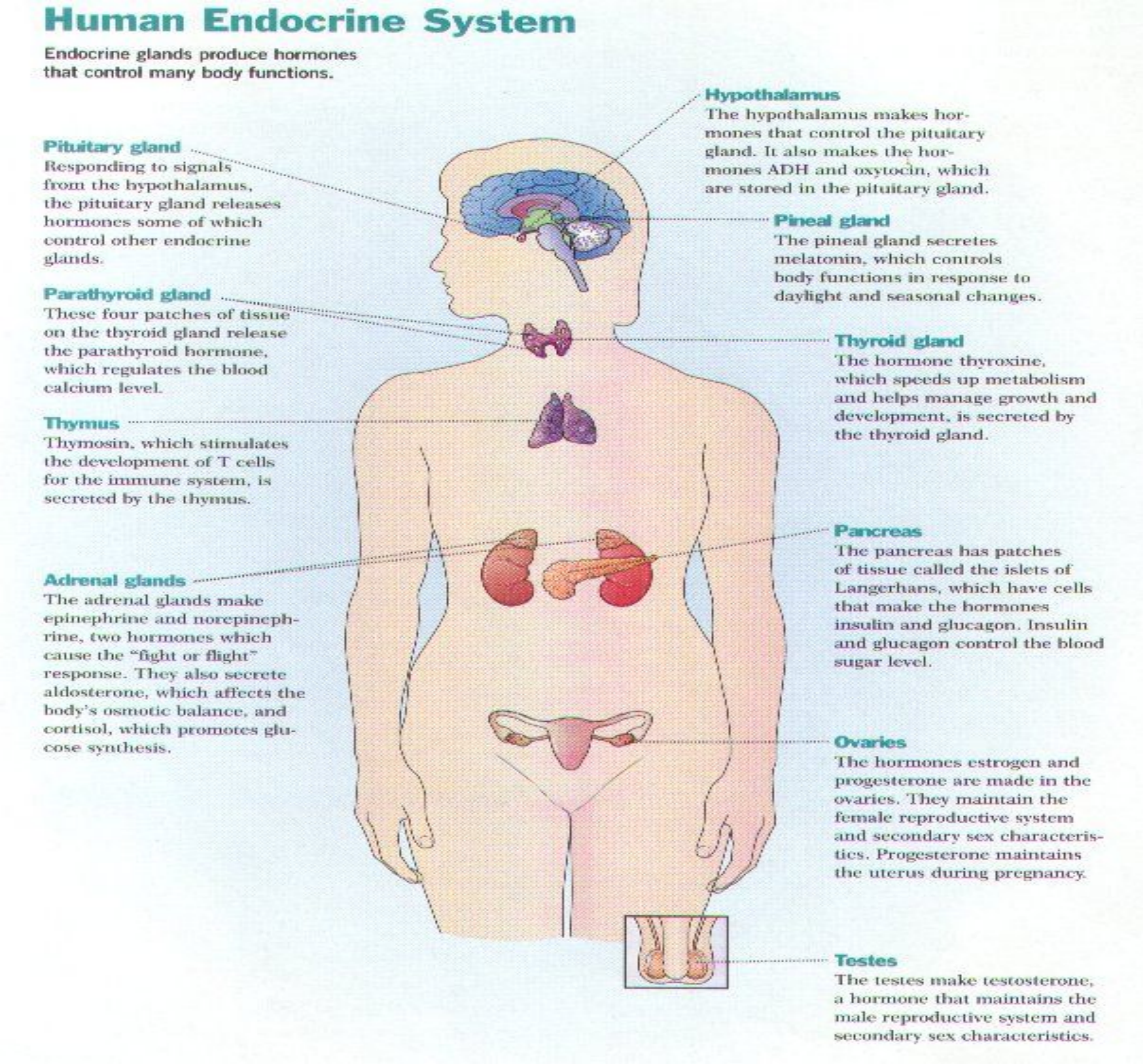
- “alarm system”
- Part of brain stem
- Filter for all sensory info
- Activates response of sympathetic nervous system


Radiations to cerebral cortex
Reticular formation
Auditory input
Visual input
Ascending general sensory fibers of spinoreticular tracts
Descending motor projections of reticulospinal tracts
Reticular Activating System

Endocrine System

- Epinephrine/adrenaline – fear (energy)
- Norepinephrine – anger (analgesic)





Human Endocrine System

Endocrine glands produce hormones that control many body functions.

Pituitary gland
Responding to signals from the hypothalamus, the pituitary gland releases hormones some of which control other endocrine glands.

Parathyroid gland
These four patches of tissue on the thyroid gland release the parathyroid hormone, which regulates the blood calcium level.

Thymus
Thymosin, which stimulates the development of T cells for the immune system, is secreted by the thymus.

Adrenal glands
The adrenal glands make epinephrine and norepinephrine, two hormones which cause the "fight or flight" response. They also secrete aldosterone, which affects the body's osmotic balance, and cortisol, which promotes glucose synthesis.

Hypothalamus
The hypothalamus makes hormones that control the pituitary gland. It also makes the hormones ADH and oxytocin, which are stored in the pituitary gland.

Pineal gland
The pineal gland secretes melatonin, which controls body functions in response to daylight and seasonal changes.

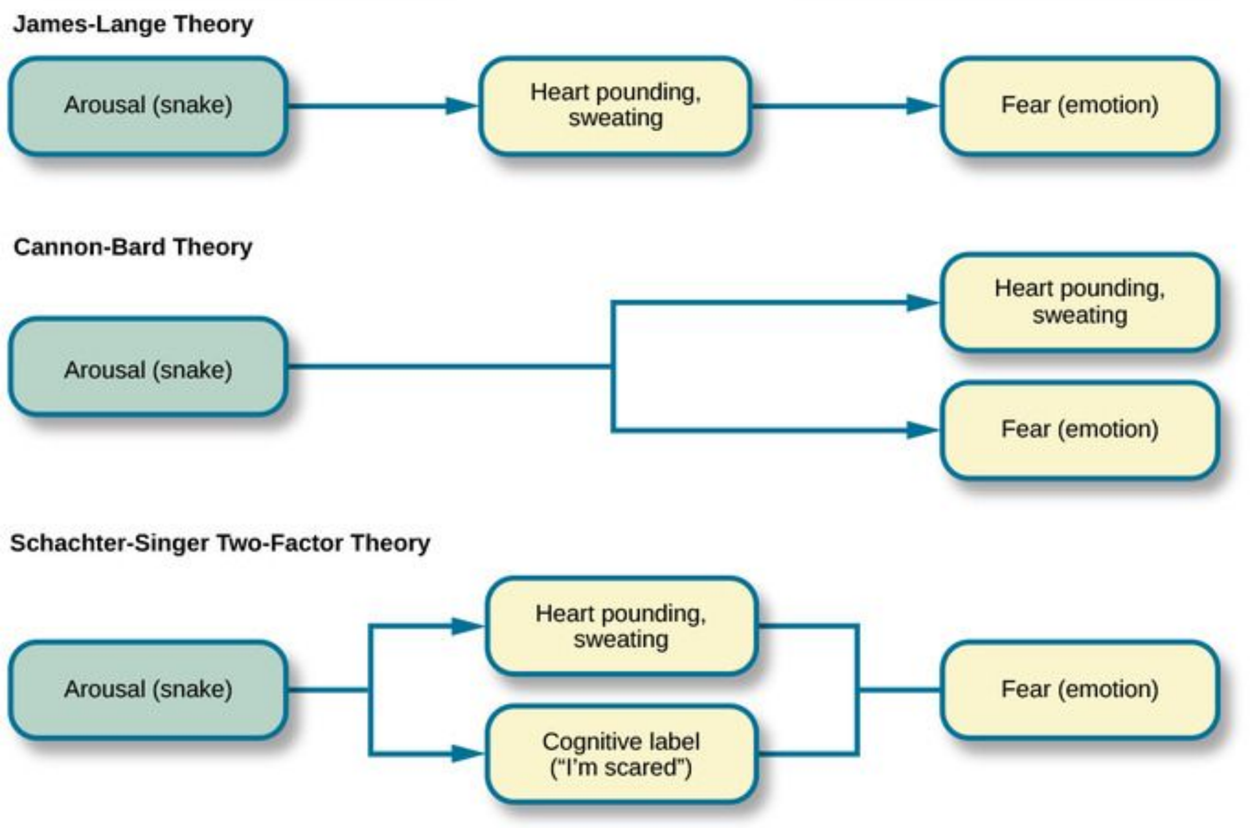
Thyroid gland
The hormone thyroxine, which speeds up metabolism and helps manage growth and development, is secreted by the thyroid gland.

Pancreas
The pancreas has patches of tissue called the islets of Langerhans, which have cells that make the hormones insulin and glucagon. Insulin and glucagon control the blood sugar level.

Ovaries
The hormones estrogen and progesterone are made in the ovaries. They maintain the female reproductive system and secondary sex characteristics. Progesterone maintains the uterus during pregnancy.

Testes
The testes make testosterone, a hormone that maintains the male reproductive system and secondary sex characteristics.

Theories of Emotion



James-Lange Theory

Arousal (snake)

Heart pounding, sweating

Fear (emotion)

Cannon-Bard Theory

Arousal (snake)

Heart pounding, sweating

Fear (emotion)

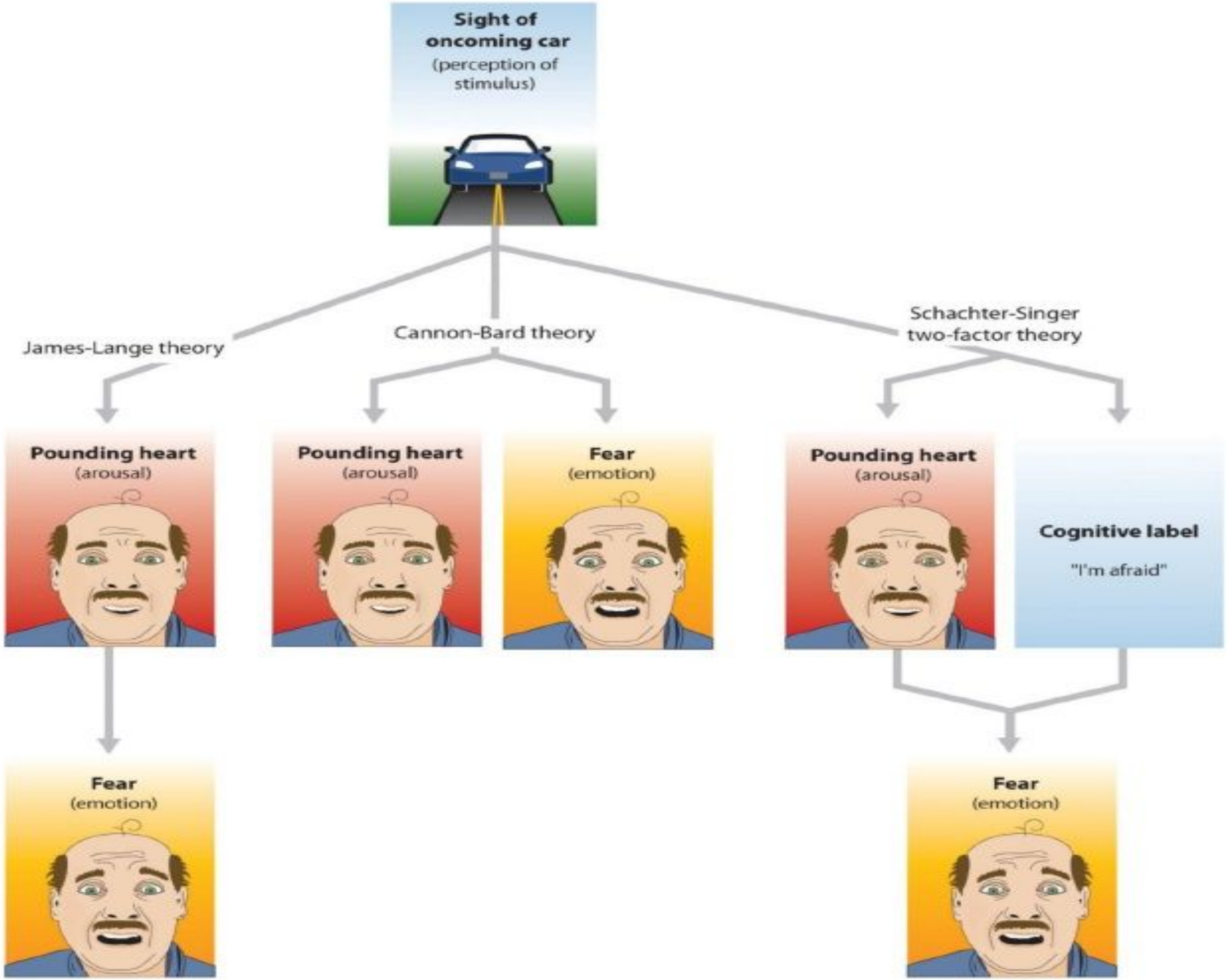
Schachter-Singer Two-Factor Theory

Arousal (snake)

Heart pounding, sweating

Cognitive label ("I'm scared")

Fear (emotion)



Sight of oncoming car
(perception of stimulus)

James-Lange theory

Pounding heart
(arousal)

Fear
(emotion)

Cannon-Bard theory

Pounding heart
(arousal)

Fear
(emotion)

Schachter-Singer two-factor theory

Pounding heart
(arousal)

Cognitive label
"I'm afraid"

Fear
(emotion)

Psychological Theories of Emotion

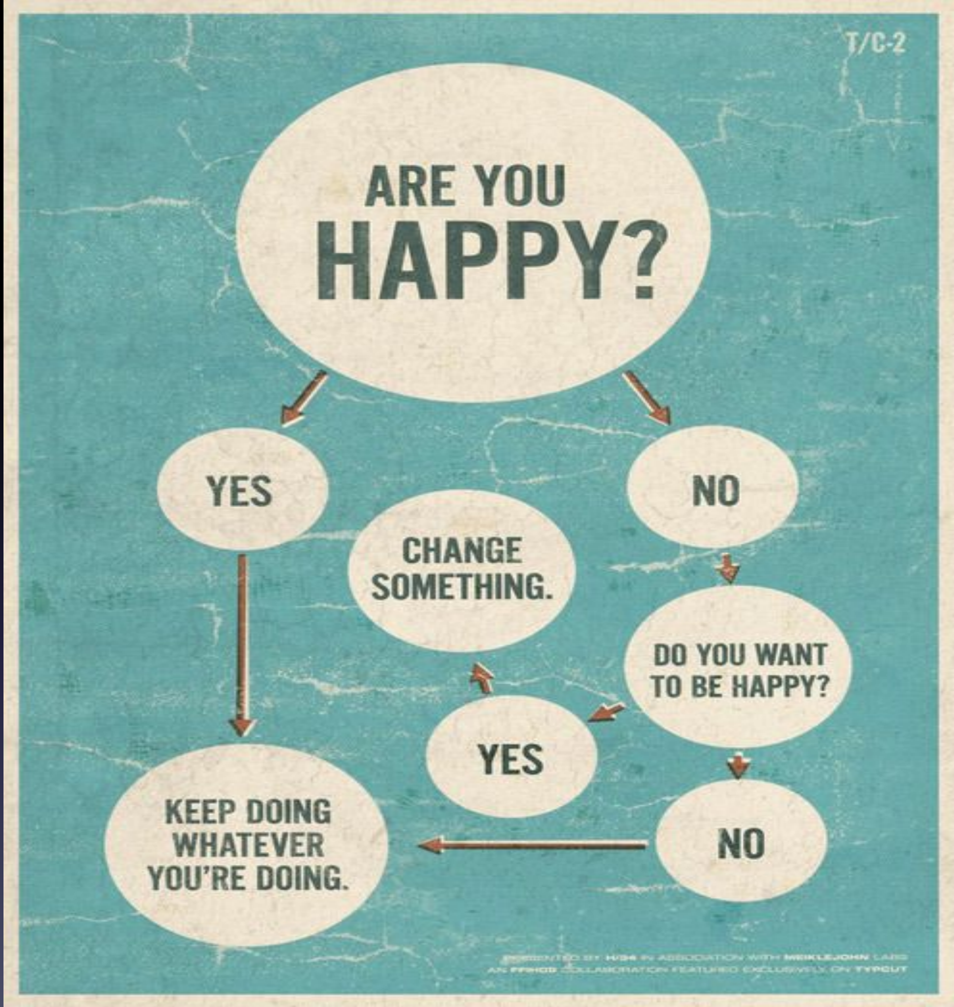
Cognitive appraisal theory –
Theory that individuals decide on an appropriate emotion AFTER the event has occurred

Opponent process theory – theory that emotions have pairs; when one is expressed the other is suppressed (ex. fear-relief, pleasure, pain)

Fear, followed by relief
Solomon & Corbit, 1974

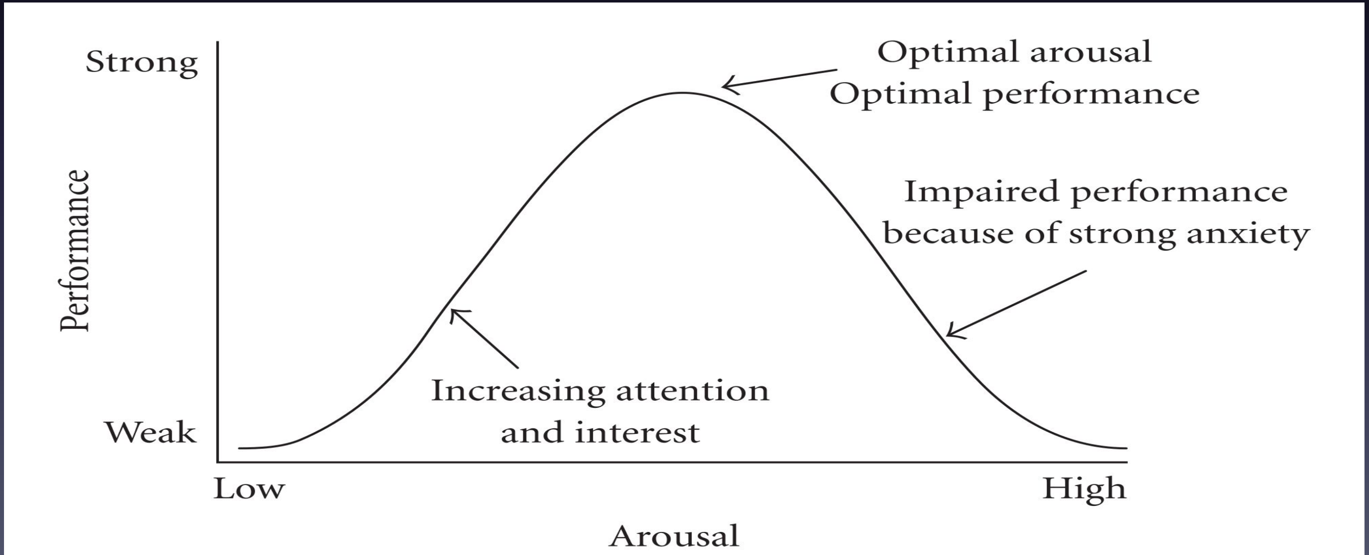
Cognitive restructuring

Cognitive psychotherapy (Arnold Lazarus) – we can conquer negative emotions by changing the way we think


T/C-2
ARE YOU HAPPY?
YES
NO
CHANGE SOMETHING.
DO YOU WANT TO BE HAPPY?
YES
NO
KEEP DOING WHATEVER YOU'RE DOING.

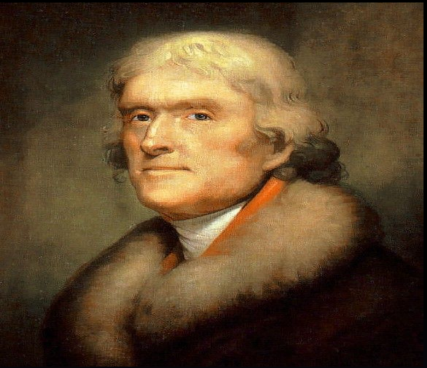
Arousal & Performance

- *Inverted "U" function (Yerkes & Dodson Law)* – relationship between arousal and performance; both low and high levels of arousal produce lower performance than does a moderate level of arousal

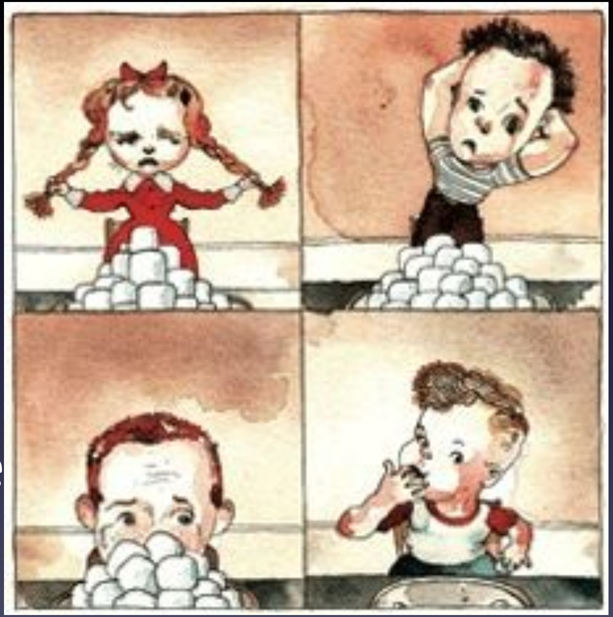


- *Sensation seekers*– Individuals who have a biological need for higher levels of stimulation than do other people

NOT HER!!! →



Emotional Intelligence



- Ability to understand and control emotional responses
- Emotional control can be achieved by learning
  - High EI: can manage negative emotions and curtail inappropriate expression of impulses (The marshmallow test!!)

Overjustification Effect

- The process by which extrinsic rewards can sometimes displace intrinsic motivation
  - When given without regard for quality of performance ("just because")
- Rewards undermine motivation and squelch creativity
- When to reward: for a job well done, when the person enjoys the activity…

Types of Motivation

- *Drive* – Biologically instigated motivation; play important role in survival/reproduction (ex. hunger, thirst, sex)
- *Motive* – Internal mechanism that directs behavior (often used to describe motivations that are learned, rather that biologically based); ex. achievement, video game playing

Types of Motivation

- *Intrinsic motivation* – Desire to engage in an activity for its own sake
- *Extrinsic motivation* – Desire to engage in an activity to achieve an external consequence (ex. a reward)

Theories of Motivation

Instinct Theory

- Bio-based behaviors; promote survival
  - *Fixed-action patterns* – Genetically based behaviors (unlearned), seen across a species, that can be set off by a specific stimulus

Drive - Reduction Theory

- View that a biological need (an imbalance that threatens survival) produces drive
  - *Homeostasis* –
    The body's tendency to maintain a biologically balanced condition
- *We act to REDUCE drives*
- Too simplistic but plays important role in survival and reproduction

But then why do we do this???

Cognitive Theory (importance of expectations) – Julian Rotter

Cognitive social learning theory – we select some behaviors over others (ie. Studying over partying) because:

- Expectations of attaining a goal (getting a good grade)
- Personal value of the goal

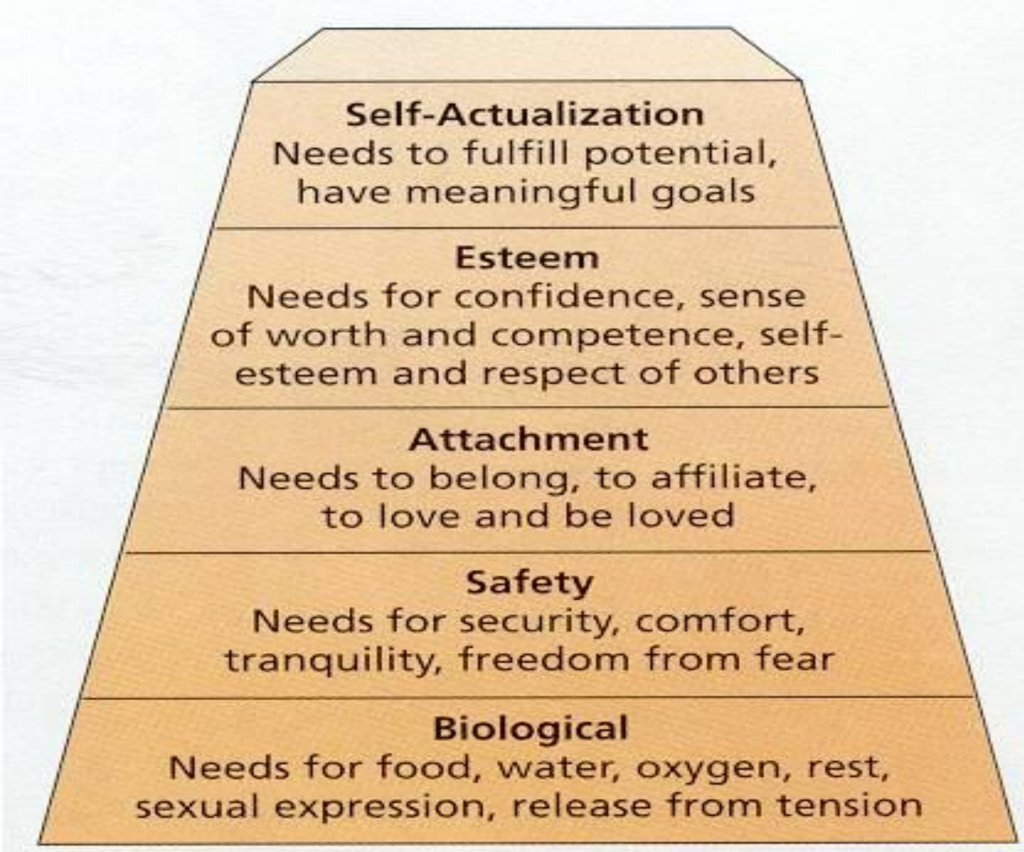
Locus of Control - An individual's sense of where his or her life influences originate; belief in ability to control our lives

- INTERNAL LOC – I have control over my circumstances
  - "I can get good grades if I study and do my work"
- EXTERNAL LOC – My circumstances are beyond my control
  - "It's the teacher's fault; she's biased and grades unfairly"

Maslow's Humanistic Theory

- *Hierarchy of needs –*
  The notion that needs occur in priorit
  order, with the biological needs as the
  most basic
- *Self actualization*
- How do you explain Gandhi??
  Sensation seeking??

**calls attention to our pressing need fo
social interaction/acceptance



Self-Actualization
Needs to fulfill potential, have meaningful goals

Esteem
Needs for confidence, sense of worth and competence, self-esteem and respect of others

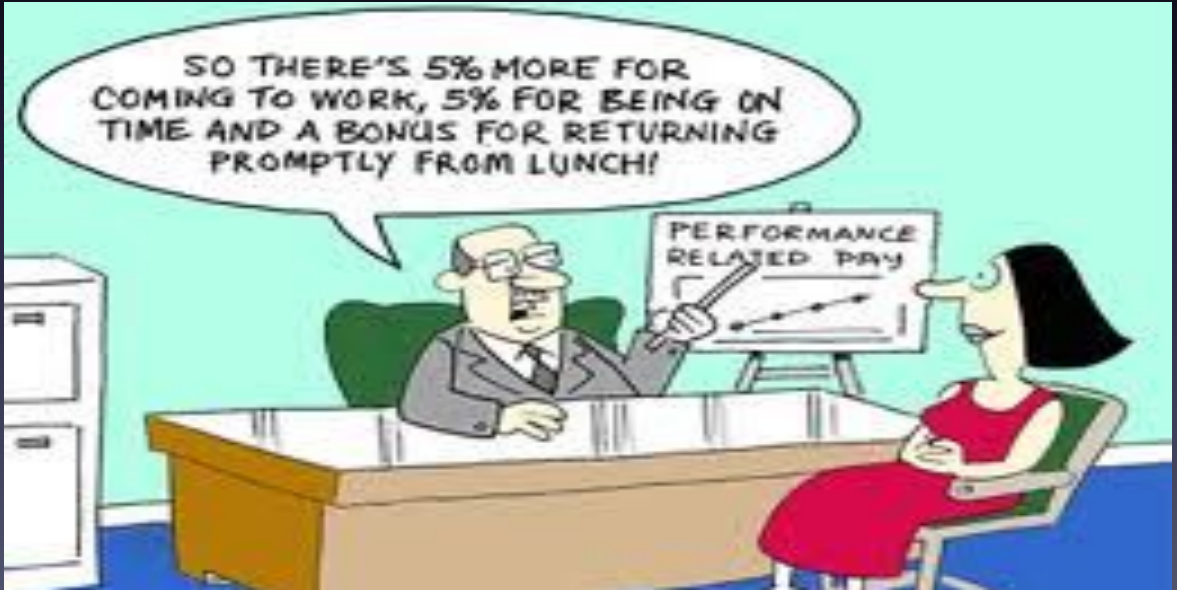
Attachment
Needs to belong, to affiliate, to love and be loved

Safety
Needs for security, comfort, tranquility, freedom from fear

Biological
Needs for food, water, oxygen, rest, sexual expression, release from tension

Incentive Theory (Reward Motivation)

motivation is largely fueled by the prospect of an external reward or incentive (Skinner)


SO THERE'S 5% MORE FOR COMING TO WORK, 5% FOR BEING ON TIME AND A BONUS FOR RETURNING PROMPTLY FROM LUNCH!
PERFORMANCE RELATED PAY

Arousal Theory

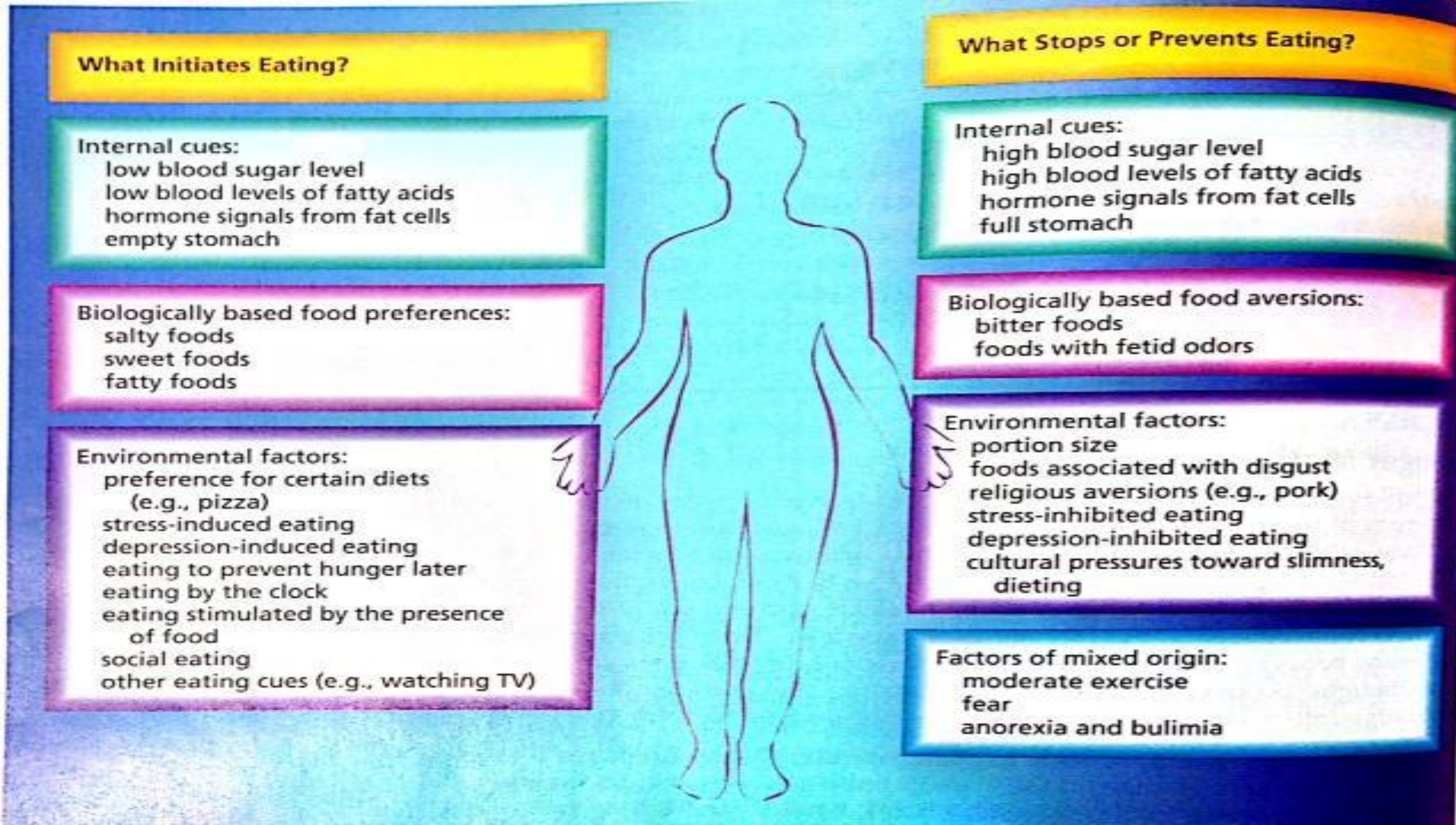
- We're motivated to maintain optimal level of arousal (we act to decrease or increase levels of arousal)
  - low arousal: might watch an exciting movie or go for a jog
  - High arousal: might look for ways to relax such as meditating or reading a book

Hunger Motivation

The multiple-systems approach to hunger

- *Hypothalamus* – monitors sugar/fat levels in blood (*lateral – hunger; ventromedial – fullness*)
- *Set point* – internal biological "scale"; weighs fat stores – when stores fall, eating behavior is triggered; tendency of the body to maintain a certain level of body fat and body weight
- Pressure detectors in stomach signal fullness or emptiness and send messages to the brain

**we have an ingrained preference for salty, fatty, sweet foods (high in calories)



What Initiates Eating?

Internal cues:
- low blood sugar level
- low blood levels of fatty acids
- hormone signals from fat cells
- empty stomach

Biologically based food preferences:
- salty foods
- sweet foods
- fatty foods

Environmental factors:
- preference for certain diets (e.g., pizza)
- stress-induced eating
- depression-induced eating
- eating to prevent hunger later
- eating by the clock
- eating stimulated by the presence of food
- social eating
- other eating cues (e.g., watching TV)

What Stops or Prevents Eating?

Internal cues:
- high blood sugar level
- high blood levels of fatty acids
- hormone signals from fat cells
- full stomach

Biologically based food aversions:
- bitter foods
- foods with fetid odors

Environmental factors:
- portion size
- foods associated with disgust
- religious aversions (e.g., pork)
- stress-inhibited eating
- depression-inhibited eating
- cultural pressures toward slimness, dieting

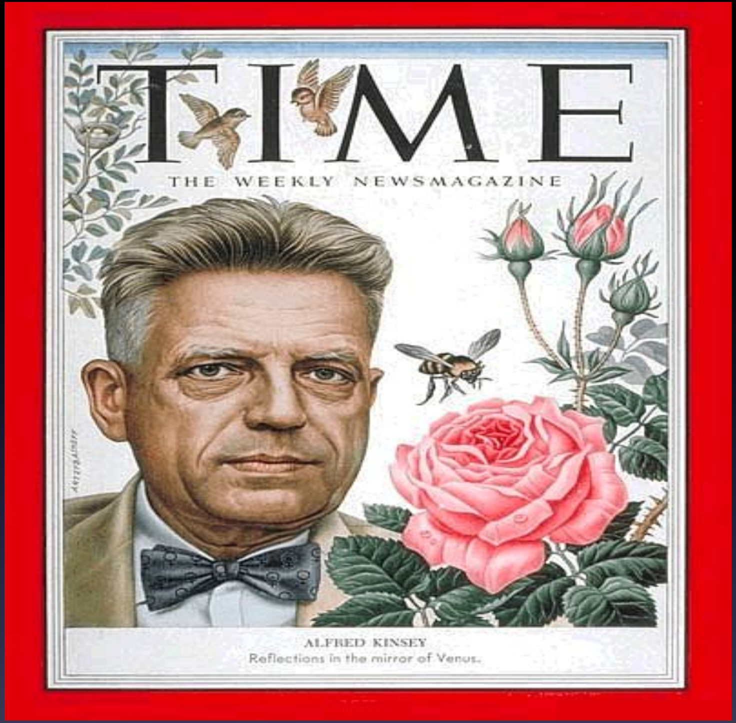
Factors of mixed origin:
- moderate exercise
- fear
- anorexia and bulimia

Eating Disorders

- Genes = gun; environment = pull the trigger (dieting may “turn on” gene that influences eating disorders)
- Anorexia nervosa – less than 85% of desired body weight and considers themselves “fat”
- Bulimia nervosa – binging (eating large amounts, loss of control), purging (vomiting, laxatives, diuretics), fasting, excessive exercise to compensate
- Binge eating disorder - same as BN but no compensatory behaviors, guilt/shame about food

The Scientific Study of Sexuality

- Sex = NOT a homeostatic drive
- Purposes: pleasure, reproduction, social bonding
- Rooted in survival (of species not individual)


TIME
THE WEEKLY NEWSMAGAZINE
ALFRED KINSEY
Reflections in the mirror of Venus.

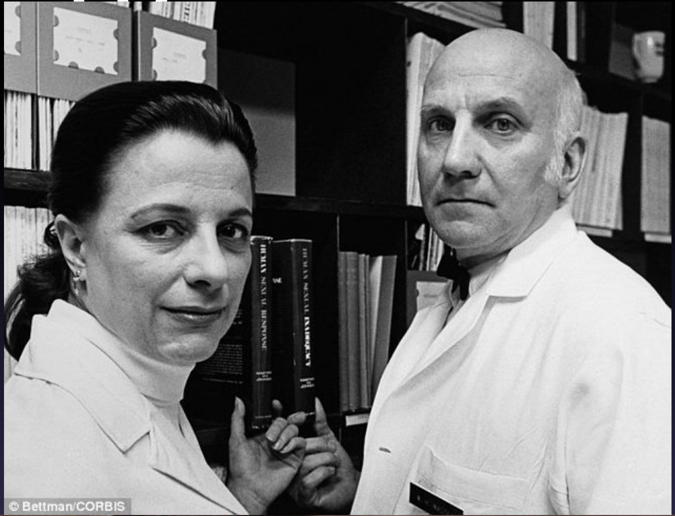
Kinsey interviewed 17,000 Americans concerning their sexual behavior

Masters & Johnson

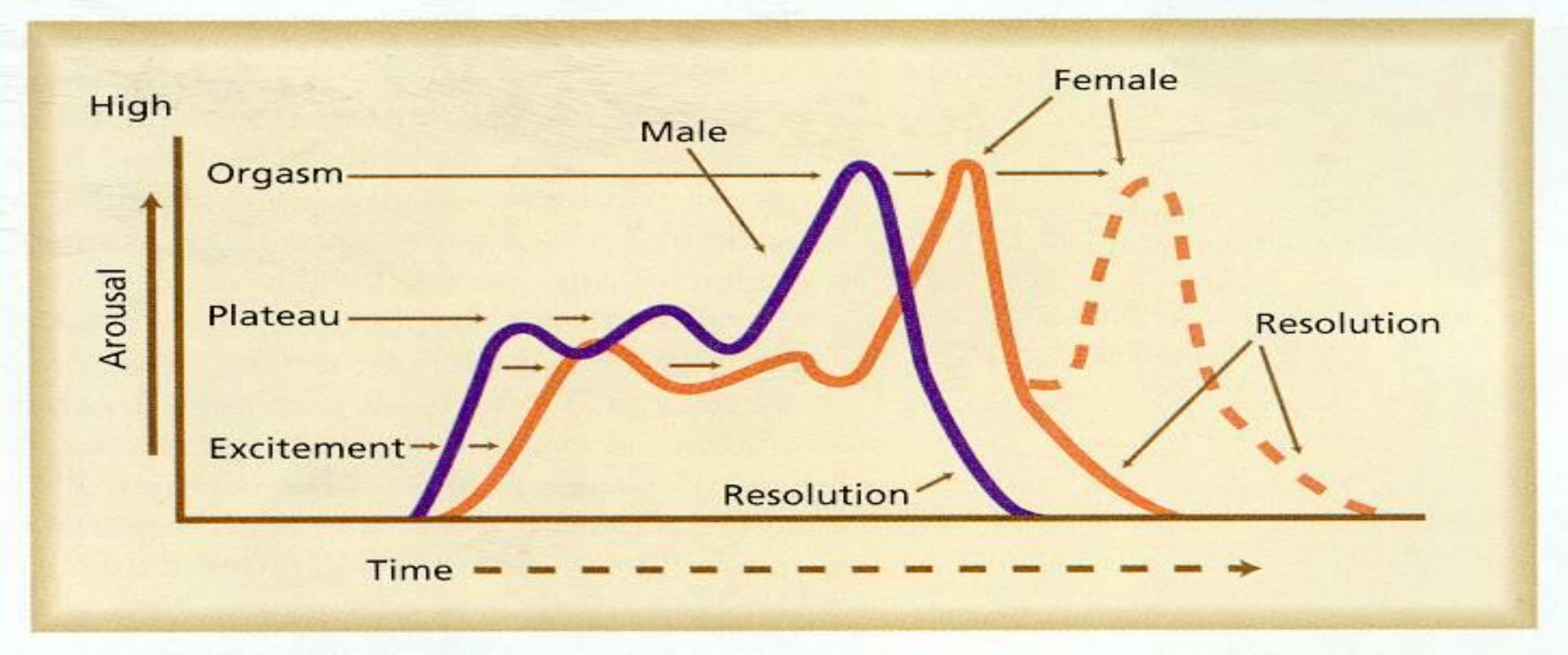
The Physiology of Sex

Late 1950s & 60s – William Masters and Virginia Johnson

- 382 females and 312 males (Only people who were willing to have sex and display orgasm in a lab environment)
- Filmed more than 10,000 sex cycles – sexual response cycle


© Bettman/CORBIS

Phases of Human Sexual



Oxytocin (secreted during ejaculation) & prolactin (suppresses dopamine) are thought to be responsible for the male refractory

Sexual Motivation

- THE BRAIN IS THE MAJOR HUMAN SEX ORGAN! (source of sexual motivation via hypothalamus and amygdala)
- Virtually any stimulus that becomes associated with genital touch and organism can become a conditioned stimulus that motivates sexual arousal/activity
- *Sexual scripts* – Socially learned ways of responding in sexual situations
- Both learning and genetics affect our sexual behaviors

How to Read Body Language: Flirting

The Origins of Sexual Orientation

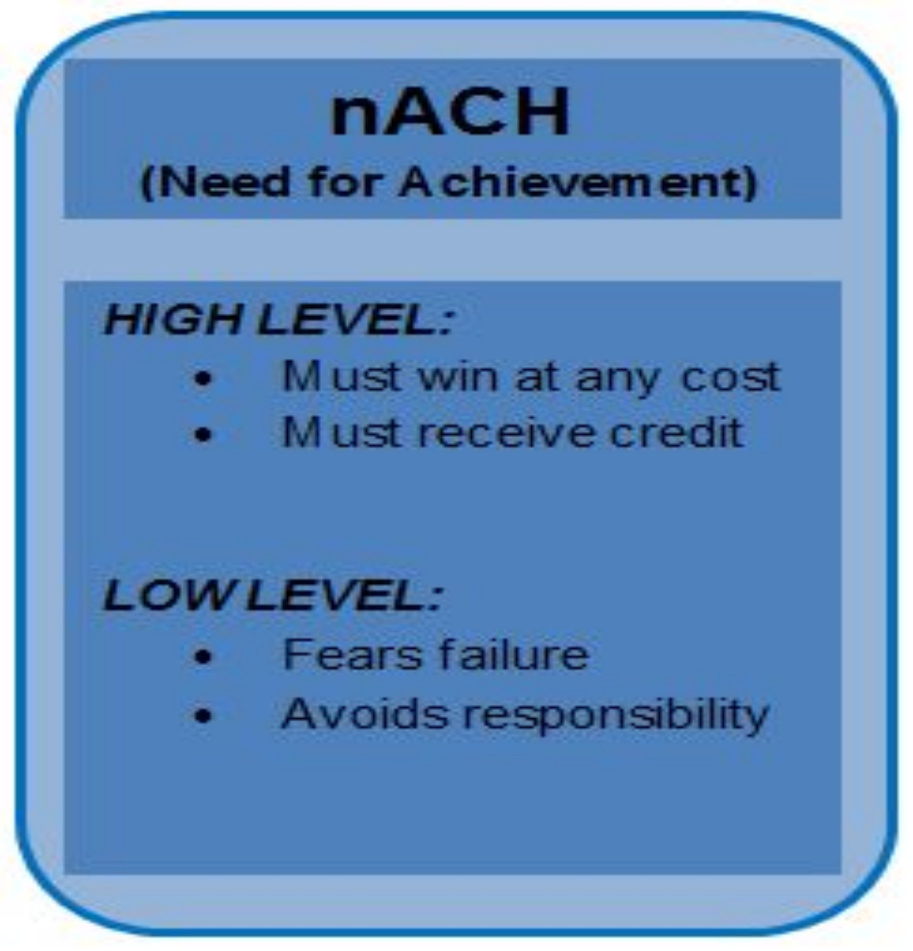
- *Sexual orientation* –
  One's erotic attraction toward members of the same sex, the opposite sex, or both sexes
- Research says it is rooted in BIOLOGY (not environmental factors like parenting)

Measuring the Need for Achievement (n Ach)

- *Projection* – Process by which people attribute their own unconscious motives to other people or objects
- *Need for achievement (n Ach)* – Mental state that produces a psychological motive to excel or reach some goal

Thematic Apperception Test (TAT)

- High n Ach = seek out moderately difficult/challenging tasks
- Low n Ach = seek out easy tasks



nACH

(Need for Achievement)

HIGH LEVEL:

- Must win at any cost
- Must receive credit

LOW LEVEL:

- Fears failure
- Avoids responsibility

A Cross-Cultural Perspective on Achievement

- *Individualism* –
  View that places a high value on individual achievement and distinction
- *Collectivism* –
  View that values group loyalty and pride over individual distinction

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Motives in Conflict

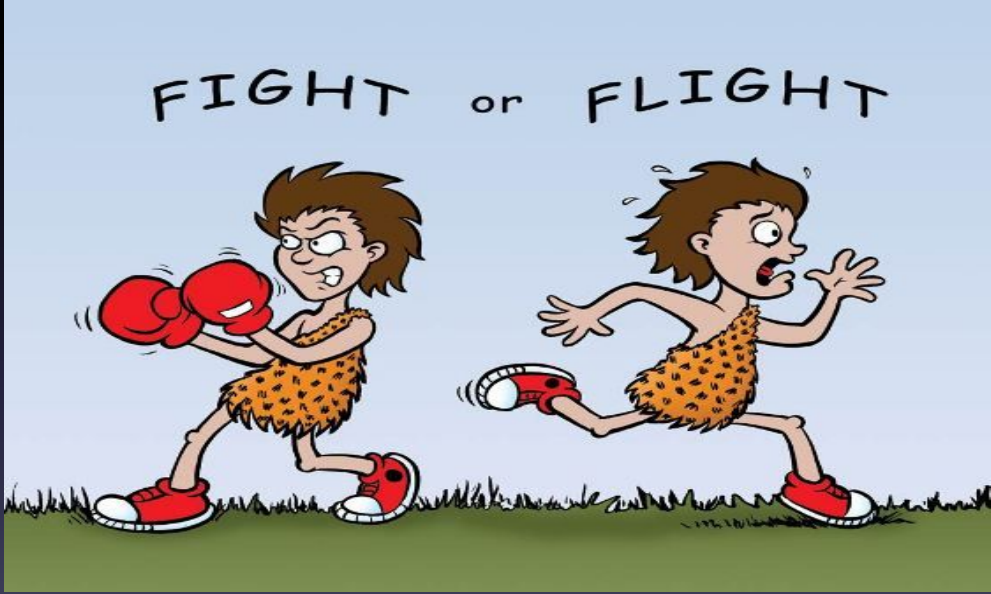
- *Approach-avoidance conflict* – A conflict in which there are both appealing and negative aspects to the decision to be made
  - I LOVE the campus setting of my dream school, but they really don’t have a great program for my major…
- *Multiple approach-avoidance conflict* – A conflict in which one must choose between options that have both many attractive and many negative aspects
  - DREAM SCHOOL: prestigious, you get a scholarship, beautiful campus; far away, need straight A's and going to play a sport, won't have a life outside of homework

What is Stress?

- *Stress* – A physical and mental response to a challenging or threatening situation (psycho-physical)
- *Stressor* – a stressful stimulus, a condition demanding adaptation

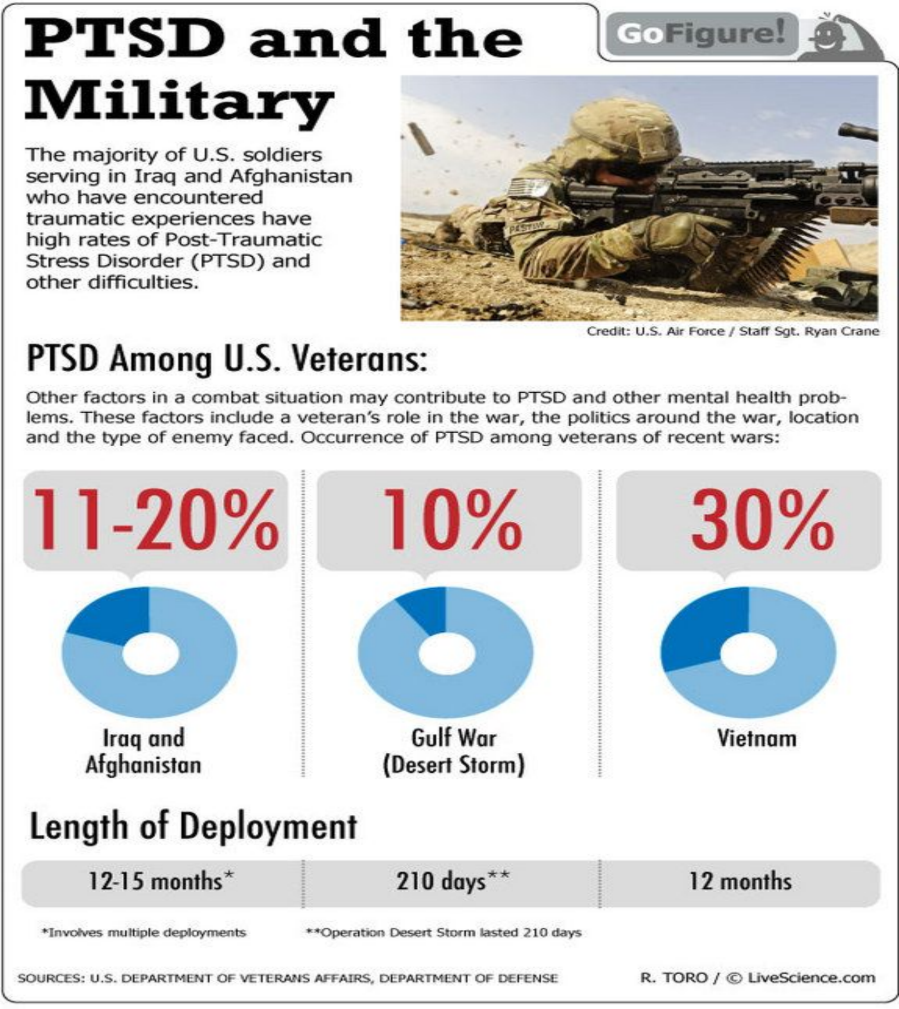
Stressors

- *Primitive stressors* – starvation, exposure to elements, attack
- *Traumatic stressor* – a situation that threatens one’s physical safety, arousing feelings of feel, horror, or helplessness



Our ancestors were best suited to fight or flee

- *PTSD*– delayed stress reaction; involuntarily re-experiences emotional, cognitive, and behavioral aspects of past trauma
- Perpetration-induced traumatic stress (PITS) – soldiers who have killed in combat
- Psychic numbing (diminished hedonic capacity)



PTSD and the Military

GoFigure!

The majority of U.S. soldiers serving in Iraq and Afghanistan who have encountered traumatic experiences have high rates of Post-Traumatic Stress Disorder (PTSD) and other difficulties.

Credit: U.S. Air Force / Staff Sgt. Ryan Crane

PTSD Among U.S. Veterans:

Other factors in a combat situation may contribute to PTSD and other mental health problems. These factors include a veteran's role in the war, the politics around the war, location and the type of enemy faced. Occurrence of PTSD among veterans of recent wars:

11-20%	10%	30%
Iraq and Afghanistan	Gulf War (Desert Storm)	Vietnam

Length of Deployment

12-15 months*	210 days**	12 months

*Involves multiple deployments

**Operation Desert Storm lasted 210 days

SOURCES: U.S. DEPARTMENT OF VETERANS AFFAIRS, DEPARTMENT OF DEFENSE

R. TORO / © LiveScience.com

Physical Stress Response

1. Initial arousal – increased heart rate, breathing, blood pressure, perspiration

   -Acute stress = temporary; chronic stress = prolonged, arousal grows slowly (ie. Jealousy)
2. Proactive behavioral reaction – “fight or flight” – controlled by amygdala & hypothalamus
3. Autonomic NS & endocrine system
4. Immune system compromised

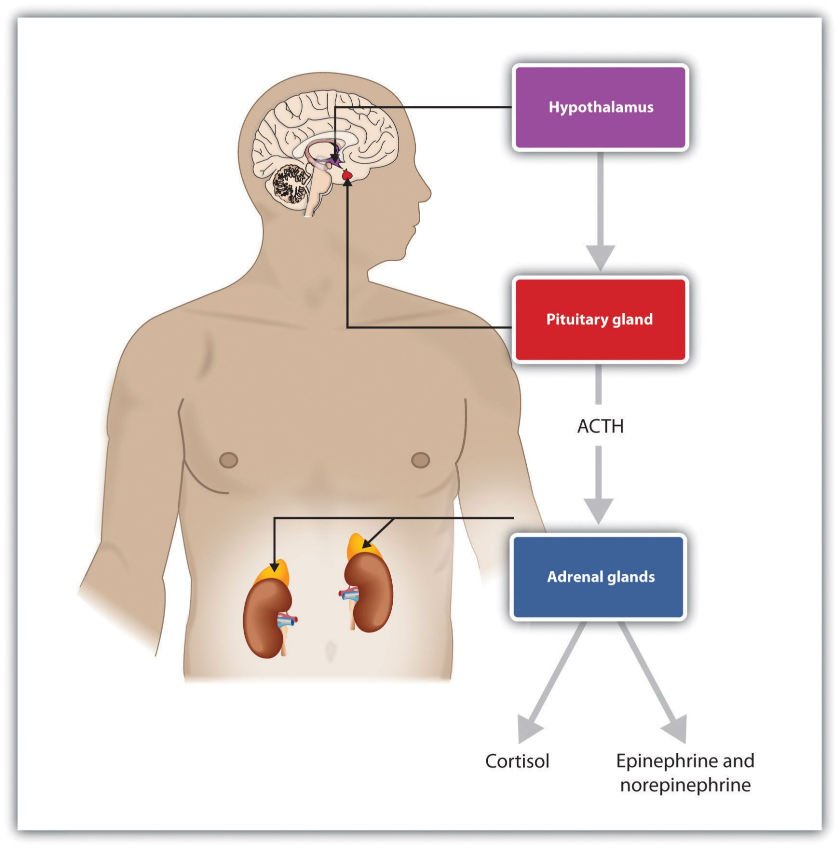
The Dangers of Stress

Modern *psychosocial stressors* – school, relationships, jobs, etc. – produce more chronic stress

** the automatic response that evolved for quick action can impede survival when it’s prolonged!

General Adaptation Syndrome (Hans Selye)

- All stressors produce same physiological reaction; all provoke adjustment/adaptation of the body
- Can lead to heart disease, asthma, headaches, gastric ulcers, arthritis, etc.

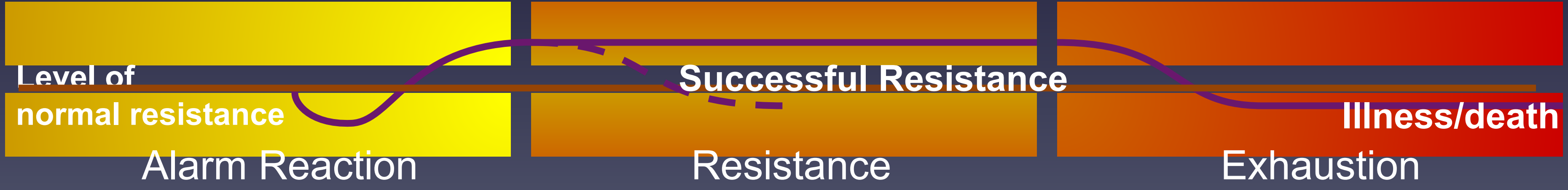

Hypothalamus
Pituitary gland
ACTH
Adrenal glands
Cortisol
Epinephrine and norepinephrine

The General Adaptation Syndrome

Alarm reaction
– the body mobilizes its resources to cope with a stressor (hypothalamus to sympathetic NS)

Resistance
– the body seems to adapt to the presence of the stressor; restore homeostasis
**death can occur if 2nd stressor is introduced

Exhaustion
– the body depletes its resources (immune system compromised)


Level of normal resistance
Successful Resistance
Illness/death
Alarm Reaction
Resistance
Exhaustion

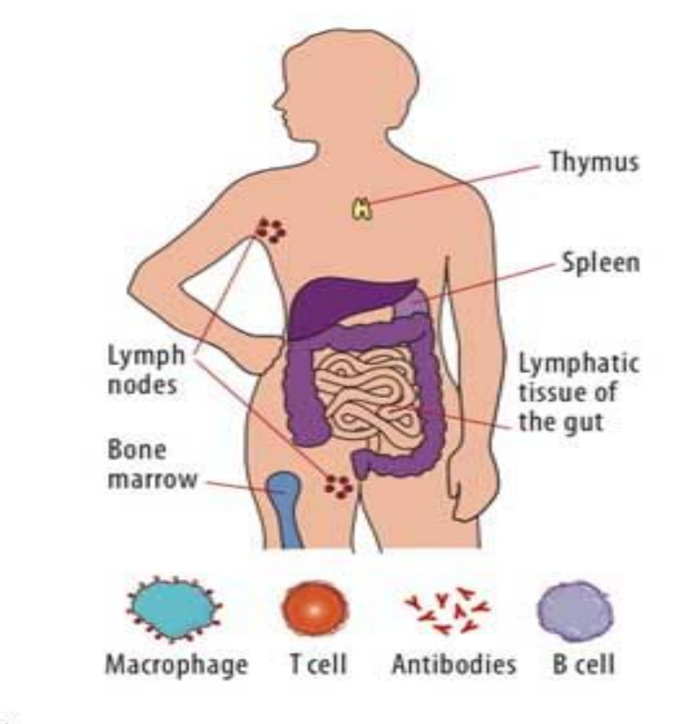
**prolonged alarm reaction can become distress and deplete body's energy and defense resources

Fight/Flight Alternatives

- *Withdrawal* – can become “frozen” when flight efforts are blocked; “deer in the headlights”; survival advantage for prey species; General Inhibition Syndrome
- *Tend-and-befriend model* –
  females are biologically predisposed to respond to stress by nurturing/protecting offspring and seeking social support (bonding response)
  - Men produce more cortisol, more prone to fear/aggression response

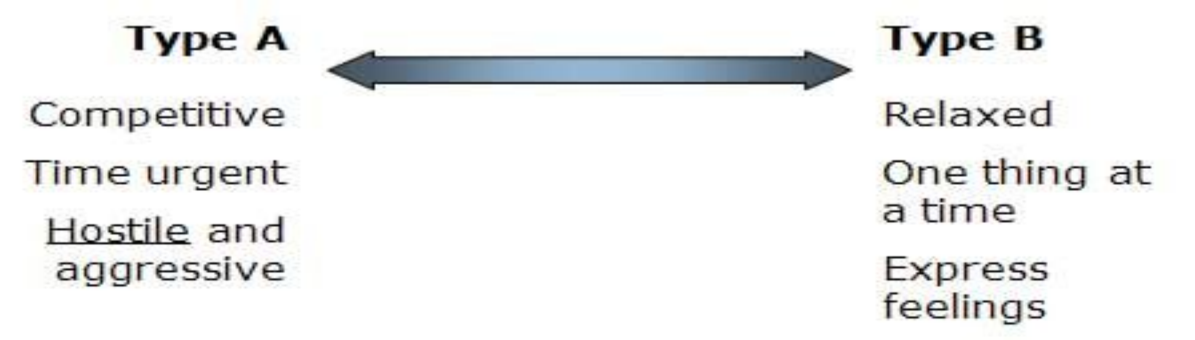
Stress and the Immune System

- *Immune system* – the body's physical defense against disease
  - Acute stressors trigger natural immunity (attack, exercise)
  - May turn on itself when faced with chronic stressors (job, relationships)– immunosuppression (those who experience chronic stress are more susceptible to illness)


Thymus
Spleen
Lymph nodes
Lymphatic tissue of the gut
Bone marrow
Macrophage
T cell
Antibodies
B cell

Personality and Stress (Friedman and Rosenman)

- *Type A* –intense, angry, competitive, or perfectionistic responses to challenging situations
- *Type B* –relaxed, unstressed approach to life



Type A	Type B
Competitive	Relaxed
Time urgent	One thing at a time
Hostile and aggressive	Express feelings

Diathesis Stress Model

- we may be biologically vulnerable to certain disorders and that certain stressors may exploit those vulnerabilities, causing one to develop a certain disorder.

Psychological Responses to Stress

Resilience – Capacity to adapt, achieve well-being, and cope with stress, in spite of serious threats to development; the RESILIENT MINDSET:

- Control
- Communication
- Realistic goals
- Empathy/compassion

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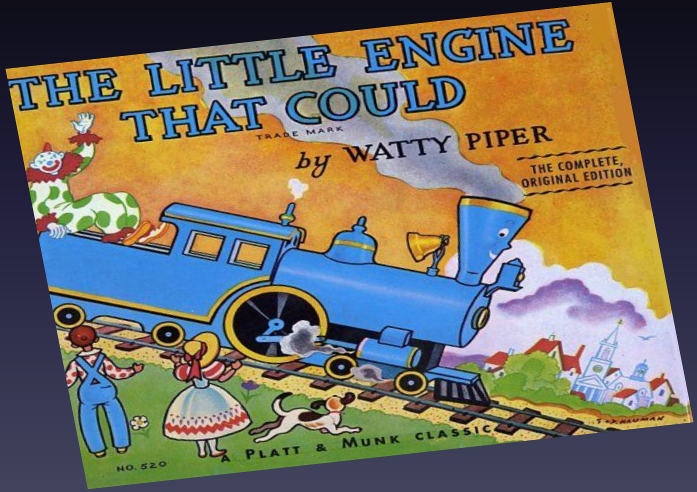
Self-Efficacy (Albert Bandura)

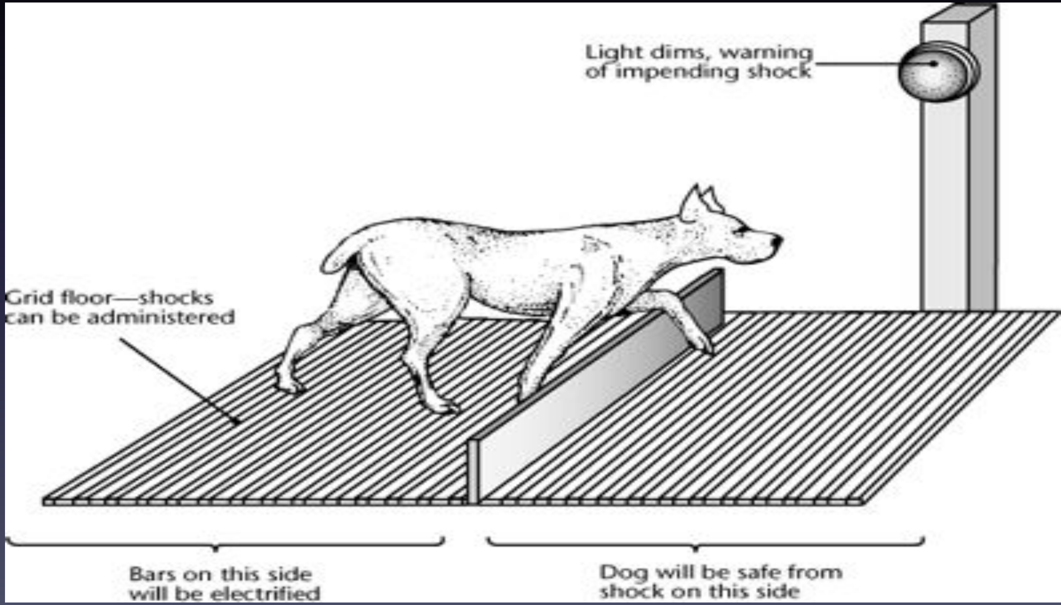
- people's internal beliefs about their ability to have an impact on events that affect their lives.
- high levels of self-efficacy – less likely to experience negative stress feelings (feel in control)
- The perception of being in control (rather than the reality of being in or out of control) = buffer of negative stress.

Learned Helplessness

- Pattern of not responding to noxious stimuli after an organism learns that its behavior has no effect


THE LITTLE ENGINE THAT COULD
TRADE MARK
by WATTY PIPER
THE COMPLETE, ORIGINAL EDITION
A PLATT & MUNK CLASSIC
NO. 520

Sometimes “I think I can” isn’t enough for struggling learners


Light dims, warning of impending shock
Grid floor—shocks can be administered
Bars on this side will be electrified
Dog will be safe from shock on this side

Motivating Yourself

- *Flow* –
  An intense focus on an activity, accompanied by increased creativity and near-ecstatic feelings
  - Involves intrinsic motivation

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Quizlet

Developmental Psychology

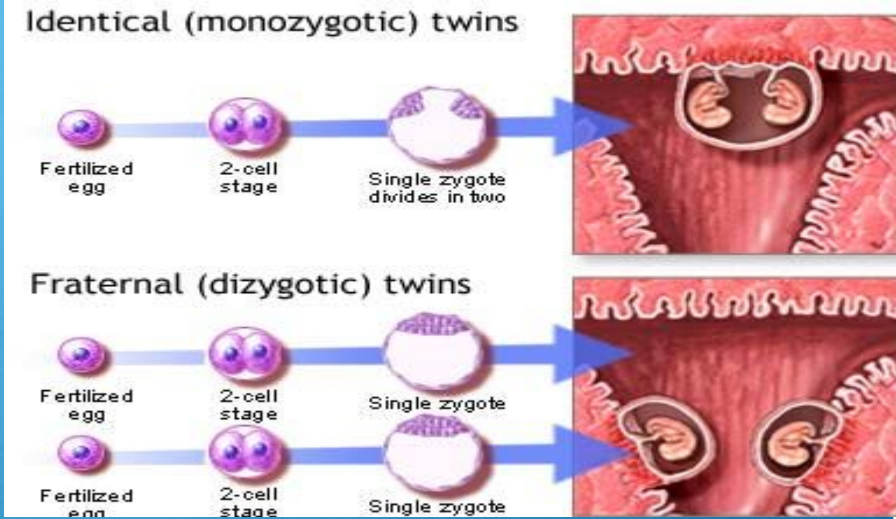
- Studies growth, change and consistency throughout lifespan
  - Interested in heredity (nature) and environmental (nurture) influences

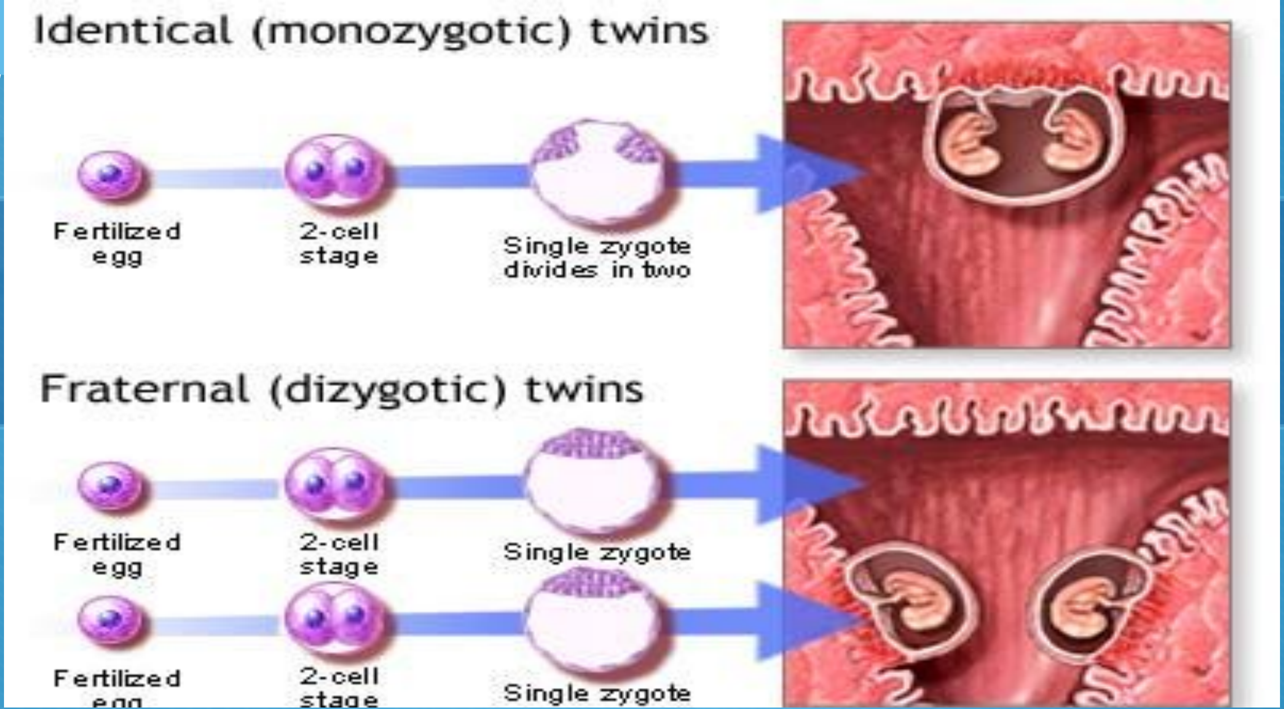
LINDINGER, MELISSA
3704598 GA=11w4d
RAB 4-8L/OB
10.1cm / 38Hz
MI 1.2 Perinatal Testing @ St. Mary
TIs 0.1 Imj
12/11/2008 04:20:10 PM
HI GUYS

Twin Studies

"Twin Jims" (video)

- twins are compared in the search for genetic and environmental effects
  - *Identical (monozygotic) twins*– A pair who started life as a single fertilized egg which later split into two distinct individuals; identical genotypes

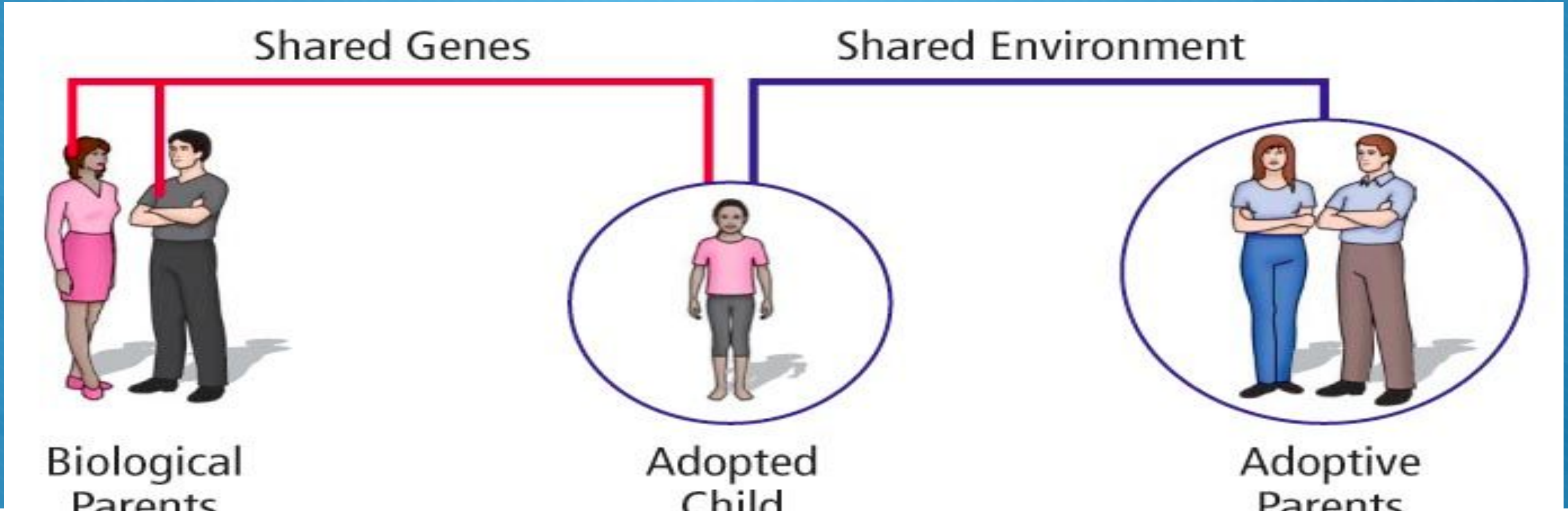

Identical (monozygotic) twins
Fertilized egg
2-cell stage
Single zygote divides in two
Fraternal (dizygotic) twins
Fertilized egg
2-cell stage
Single zygote
Fertilized egg
2-cell stage
Single zygote


Identical (monozygotic) twins
Fertilized egg
2-cell stage
Single zygote divides in two
Fraternal (dizygotic) twins
Fertilized egg
2-cell stage
Single zygote
Fertilized egg
2-cell stage
Single zygote

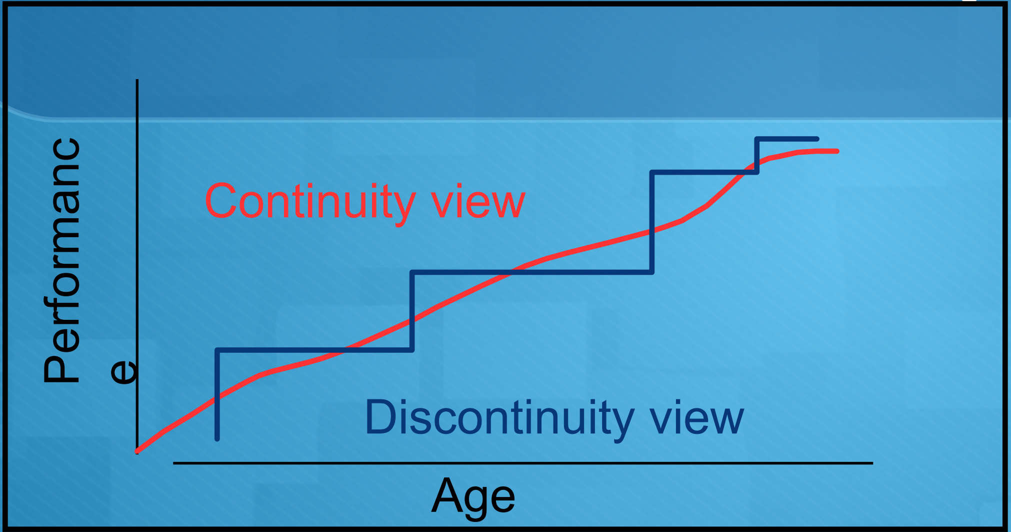
- *Fraternal (dizygotic) twins*– A pair who started life as two separate fertilized eggs that happened to share the same womb; 50% of genes in common

Adoption Studies

- **adopted child's characteristics are compared to those of the biological family and the adoptive family**


Shared Genes
Shared Environment
Biological Parents
Adopted Child
Adoptive Parents

Gradual v. Abrupt Change


Continuity view
Discontinuity view
Performance
Age

Continuity view ***(change is gradual)***

vs.

Discontinuity view ***(developmental stages)***

Developmental stages **– Periods of life initiated by significant transitions or changes in physical or psychological functioning; same stages, different pace**

Prenatal Development

LINDINGER, MELISSA
3704598 GA=11w4d
RAB 4-8L/OB
10.1cm / 38Hz
MI 1.2 Perinatal Testing @ St. Mary
TIs 0.1 Imj 12/11/2008 04:15:45 PM
2+3 Trim.
Har-low
Pwr 100 %
Gn 4
C7 / M7
P3 / E2
SRI II 3

Olivia @ 8 weeks

- 9 months – development before birth
  - Zygote – fertilized egg (cell division); when it reaches 150 cells it implants into uterus (10 days after conception) and becomes…
  - Embryo – cells specialize to organ systems (differentiation); embryonic stem cells = any organ!
  - Fetus – 8 weeks into development; spontaneous movement (somatic nervous system)

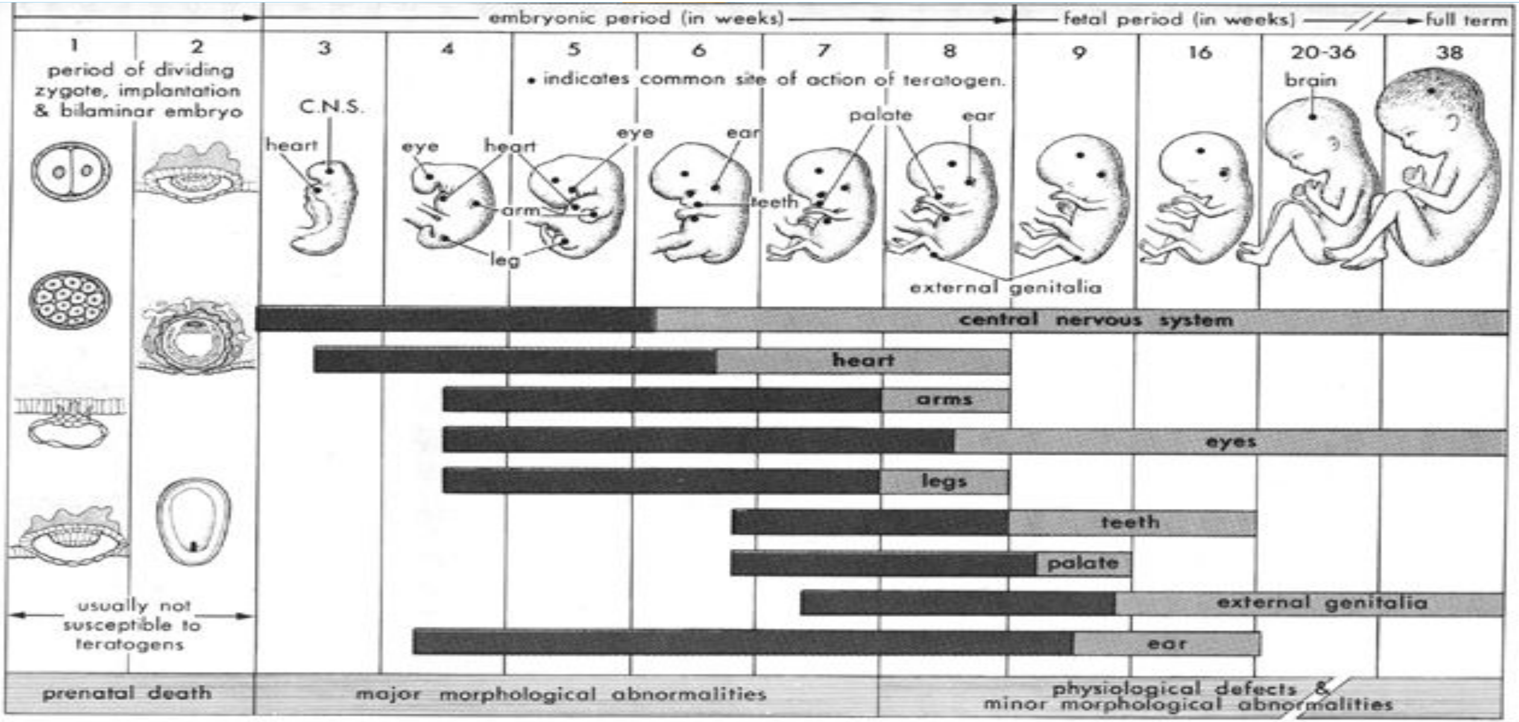


Figure 8–14 Critical periods of human development during which time teratogens are most effective. Black areas show the most critical spans of time and denote the major morphological abnormalities most likely to occur.

- **Placenta – An organ that develops between the embryo/fetus and the mother; only screens SOME toxins**
  - **Teratogens –prenatal toxins that can damage the developing organism (ex. HIV/AIDS, fetal alcohol syndrome)**

Neonatal Period

- Birth to one month
- Respond to stimuli from all senses
  - Nearsighted
  - 7 wks – scan caregiver’s face; make eye contact
  - 1-2 mo – color differentiation
  - 3 mo – depth perception (develops further with crawling – visual cliff experiments!)

Common Reflexes of the Newborn

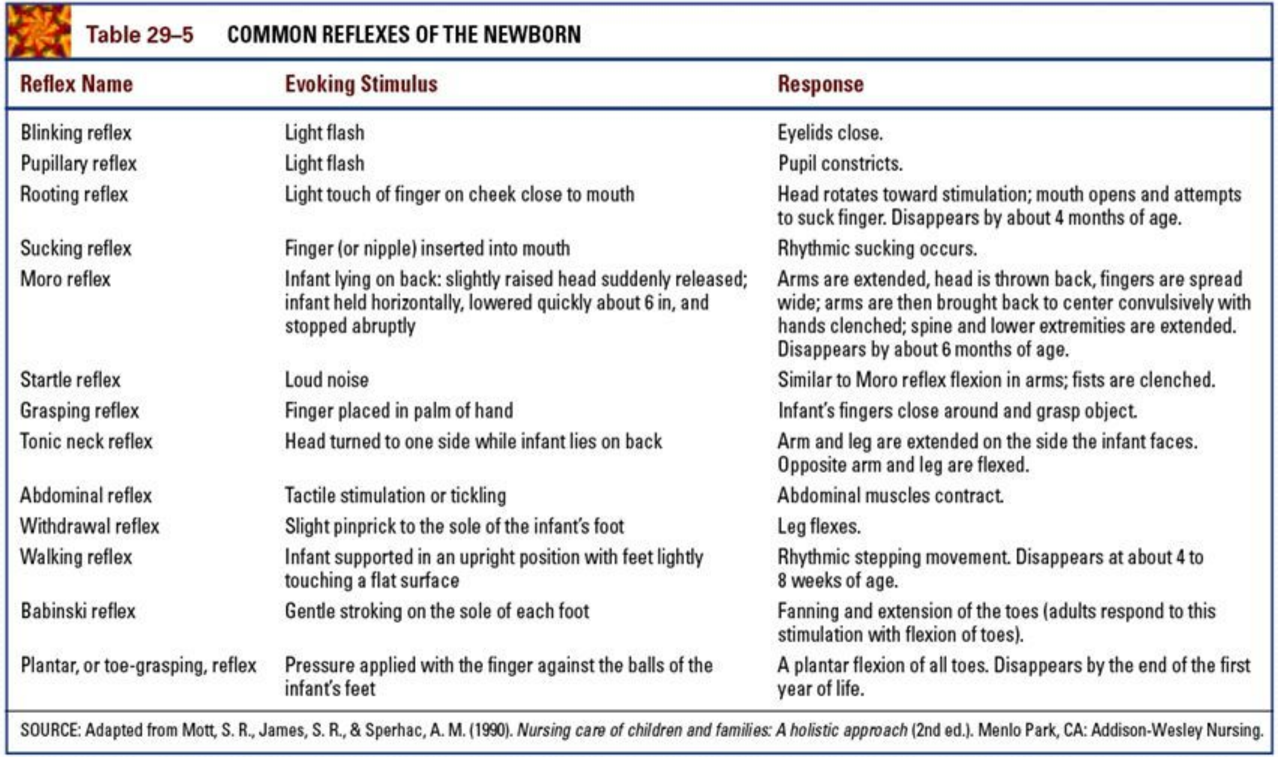


Table 29–5 COMMON REFLEXES OF THE NEWBORN

Reflex Name	Evoking Stimulus	Response
Blinking reflex	Light flash	Eyelids close.
Pupillary reflex	Light flash	Pupil constricts.
Rooting reflex	Light touch of finger on cheek close to mouth	Head rotates toward stimulation; mouth opens and attempts to suck finger. Disappears by about 4 months of age.
Sucking reflex	Finger (or nipple) inserted into mouth	Rhythmic sucking occurs.
Moro reflex	Infant lying on back: slightly raised head suddenly released; infant held horizontally, lowered quickly about 6 in, and stopped abruptly	Arms are extended, head is thrown back, fingers are spread wide; arms are then brought back to center convulsively with hands clenched; spine and lower extremities are extended. Disappears by about 6 months of age.
Startle reflex	Loud noise	Similar to Moro reflex flexion in arms; fists are clenched.
Grasping reflex	Finger placed in palm of hand	Infant's fingers close around and grasp object.
Tonic neck reflex	Head turned to one side while infant lies on back	Arm and leg are extended on the side the infant faces. Opposite arm and leg are flexed.
Abdominal reflex	Tactile stimulation or tickling	Abdominal muscles contract.
Withdrawal reflex	Slight pinprick to the sole of the infant's foot	Leg flexes.
Walking reflex	Infant supported in an upright position with feet lightly touching a flat surface	Rhythmic stepping movement. Disappears at about 4 to 8 weeks of age.
Babinski reflex	Gentle stroking on the sole of each foot	Fanning and extension of the toes (adults respond to this stimulation with flexion of toes).
Plantar, or toe-grasping, reflex	Pressure applied with the finger against the balls of the infant's feet	A plantar flexion of all toes. Disappears by the end of the first year of life.

SOURCE: Adapted from Mott, S. R., James, S. R., & Sperhac, A. M. (1990). *Nursing care of children and families: A holistic approach* (2nd ed.). Menlo Park, CA: Addison-Wesley Nursing.

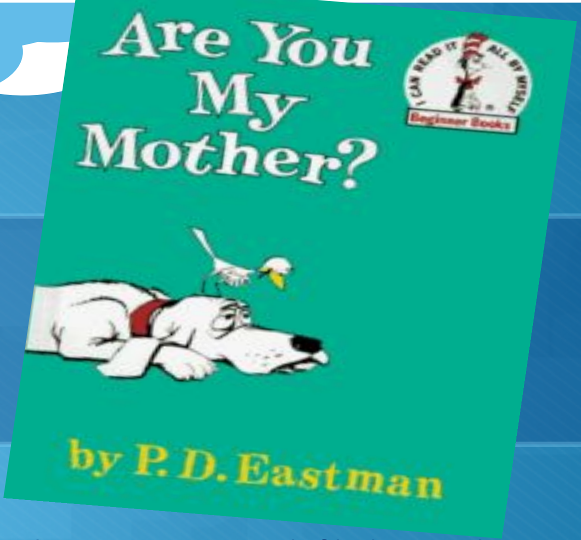
Infancy

04/01/2010

- from one month to dev. of language –
about 18 months
- Brain shifts from creating new neurons to creating new connections; neural mass increases 50% in first 2 yrs
  - **Synaptic pruning** – unused connections are lost
- Babies learn through classical conditioning (ie. Associate mother's voice with time to eat)

Imprinting Example

Attachment


Are You My Mother?
by P. D. Eastman
I CAN READ IT ALL BY MYSELF
Beginner Books

- Establishment of a close emotional relationship between child and parent figure
- lays foundation for all relationships that follow
- Behaviors occur instinctively
- **Imprinting** – attraction of infants of some species (especially birds) to the first moving object/individual they see

Attachment: Ainsworth

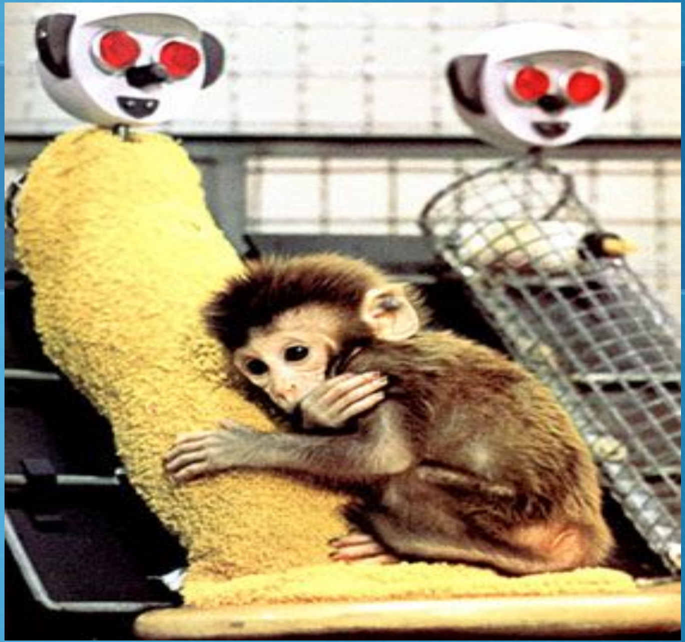
- Mary Ainsworth – attachment occurs w/i first few weeks. Research:
  - baby's skin temp dropped and stayed low when mother left the room (signaled that caregiver is a safe haven even when babies aren't able to move toward them/vocalize)
  - The Strange Situation - how did babies react to mom during "THE REUNION"? Were the comforted? Still visibly upset? Avoidant?

Two types of attachment

- Secure attachment (69%)- close to mothers, safe, would explore new situations, confident that if they cried they'd be taken care of
- Insecure attachment - cried w/ fear or anger; couldn't be consoled even by mother; unconcerned about being separated **result of repeated rejection/inconsistent attention to needs
  - Anxiety/ambivalence (23%)
  - Avoidance (8%)

Contact Comfort

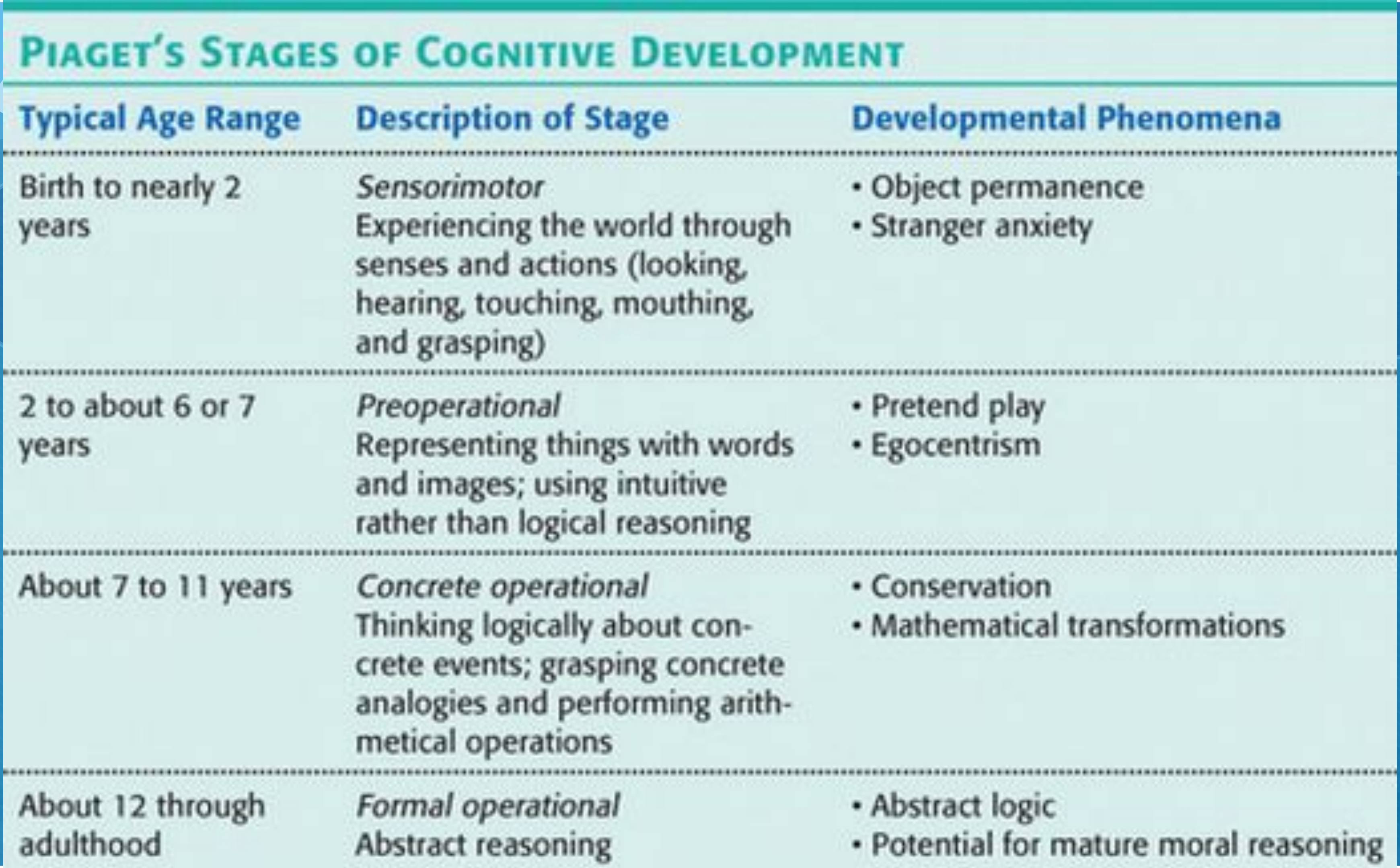
- Margaret & Harry Harlow's studies with monkeys tested "cupboard" theory – infants will attach to food supply (Freudian influence)
- fundamental cause of attachment involved contact comfort – stimulation, reassurance physical touch



Orphaned monkeys placed in a cage w/ 2 surrogate mothers – one a "cupboard", the other comfort; spent more time w/ cloth figure, clung to it when frightened

Maturation

- The unfolding of genetically programmed processes of growth and development over time
  - Can be influenced by environment (ie. Children in Iranian orphanages slower to develop motor skills; in other cultures children may develop faster given certain conditions)
- Physical growth = continuous but growth of length of infants' bodies happens in spurts (saltation)



PIAGET'S STAGES OF COGNITIVE DEVELOPMENT

Typical Age Range	Description of Stage	Developmental Phenomena
Birth to nearly 2 years	*Sensorimotor* Experiencing the world through senses and actions (looking, hearing, touching, mouthing, and grasping)	• Object permanence • Stranger anxiety
2 to about 6 or 7 years	*Preoperational* Representing things with words and images; using intuitive rather than logical reasoning	• Pretend play • Egocentrism
About 7 to 11 years	*Concrete operational* Thinking logically about concrete events; grasping concrete analogies and performing arithmetical operations	• Conservation • Mathematical transformations
About 12 through adulthood	*Formal operational* Abstract reasoning	• Abstract logic • Potential for mature moral reasoning

Preoperational Limitations

- Egocentrism – self-centered; don’t realize that there are viewpoints other than their own
- Animistic thinking – inanimate objects have life/mental processes like their own
- Centration – focus attention too narrowly; tall, narrow glass MUST have more water than short wide glass! (lacks conservation)
- Irreversibility – can’t think through steps of solving problem then reverse course to return to mental starting point; can’t do/undo acts in their minds *biggest obstacle to logical thinking

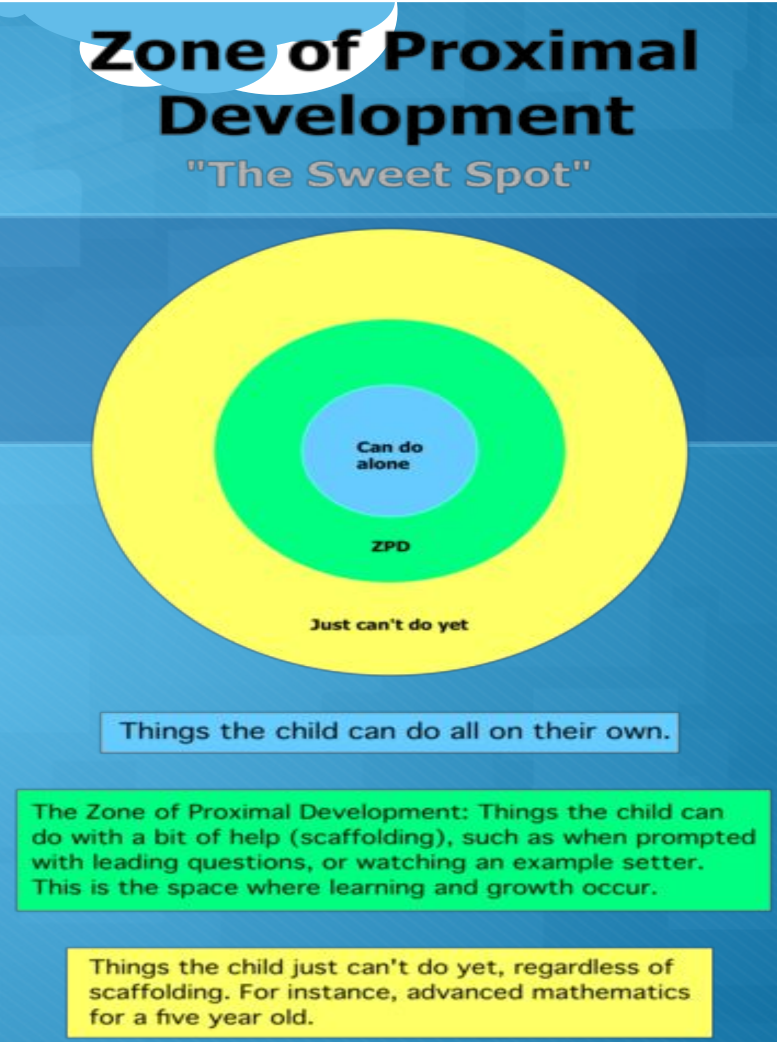
Social and Emotional Development

- *Theory of Mind* – awareness that other people's behavior may be influenced by beliefs, desires, and emotions that differ from one's own (preoperational child lacks this)

- *Temperament* ("nature")– inherent, "wired" pattern of personality/behavior; can be altered by parenting style (nurture)
    - 10-15% of infants are born "shy" or "bold"

Zone of Proximal Development

- *Vygotsky* – social interaction plays key role in cognitive development
  - *Zone of proximal development* - children may develop quickly or slowly depending on support/guidance available



Zone of Proximal Development

"The Sweet Spot"

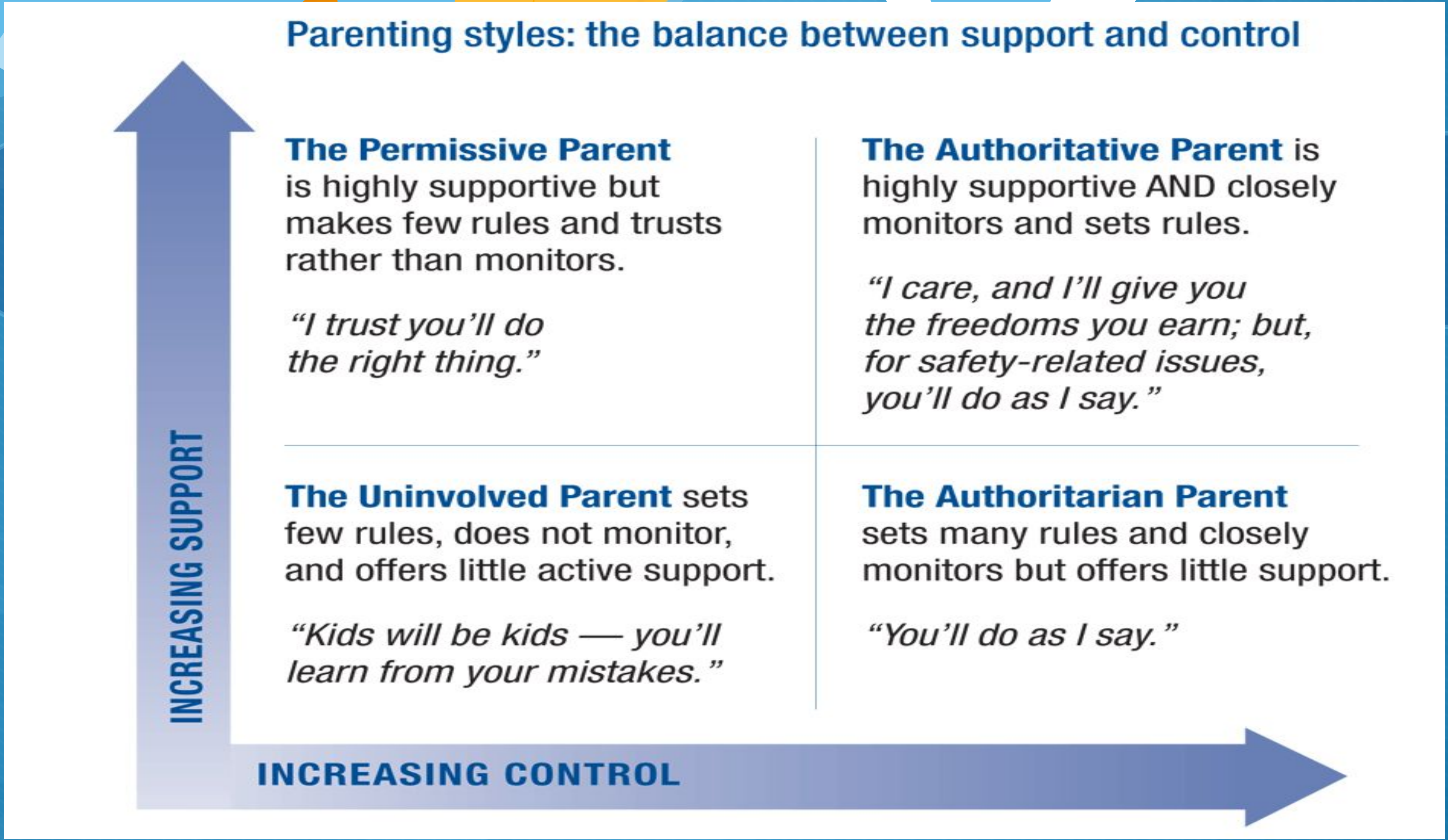
Things the child can do all on their own.

The Zone of Proximal Development: Things the child can do with a bit of help (scaffolding), such as when prompted with leading questions, or watching an example setter. This is the space where learning and growth occur.

Things the child just can't do yet, regardless of scaffolding. For instance, advanced mathematics for a five year old.

Socialization (nurture)

- lifelong process of shaping an individual's behavior patterns, values, standards, skills, attitudes and motives to conform to those regarded as desirable in a particular society
  - Parenting (Bandura!!), day cares, schools, etc. are influential



Parenting styles: the balance between support and control

The Permissive Parent is highly supportive but makes few rules and trusts rather than monitors.

"I trust you'll do the right thing."

The Authoritative Parent is highly supportive AND closely monitors and sets rules.

"I care, and I'll give you the freedoms you earn; but, for safety-related issues, you'll do as I say."

The Uninvolved Parent sets few rules, does not monitor, and offers little active support.

"Kids will be kids — you'll learn from your mistakes."

The Authoritarian Parent sets many rules and closely monitors but offers little support.

"You'll do as I say."

Parenting Styles: Outcomes

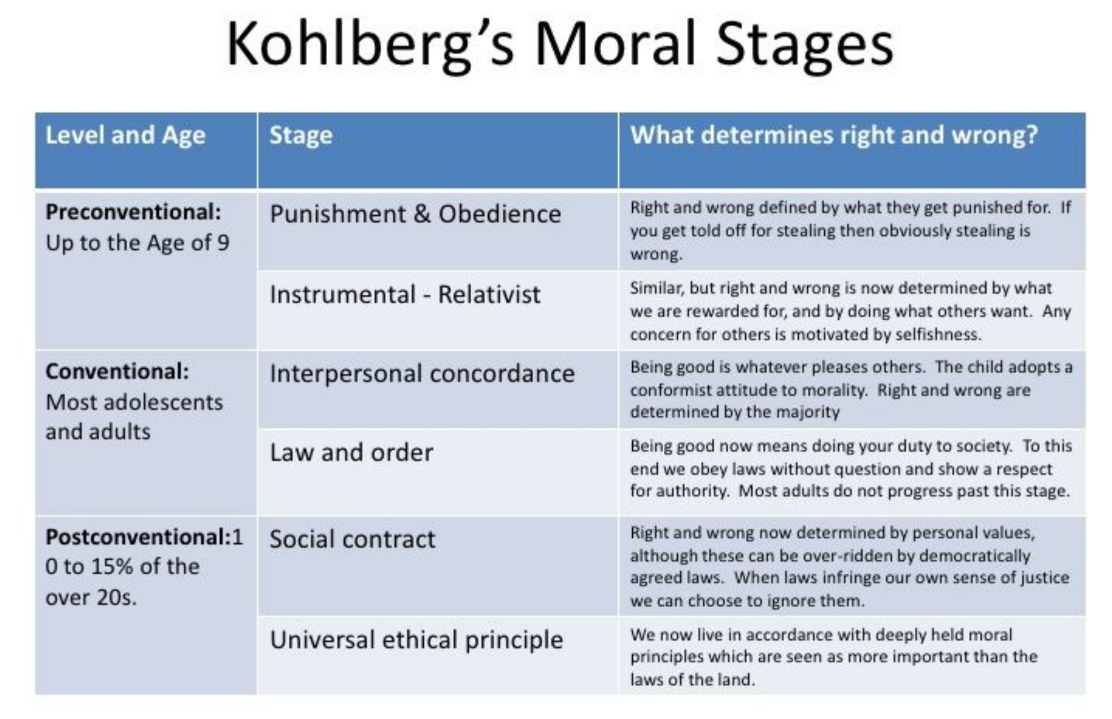
- Authoritarian – anxious and insecure
- Authoritative – confident, self reliant, enthusiastic – happier, less troublesome and more successful

- Permissive/uninvolved – less mature, more impulsive, more dependent and demanding

Stage	Psychosocial Crisis	Basic Virtue	Age
1	Trust vs. mistrust	Hope	Infancy (o to1 ½)
2	Autonomy vs. shame	Will	Early Childhood (1 ½ to3)
3	Initiative vs. guilt	Purpose	Play Age (3 to 5)
4	Industry vs. inferiority	Competency	School Age (5 to 12)
5	Ego identity vs. Role Confusion	Fidelity	Adolescence (12 to 18)
6	Intimacy vs. isolation	Love	Young Adult (18 to 40)
7	Generativity vs. stagnation	Care	Adult hood(40 to 65)
8	Ego integrity vs. despair	Wisdom	Maturity (65+)

Clip: Which stage is this boy in?

Kohlberg’s Stages of Moral Reasonin



Kohlberg’s Moral Stages

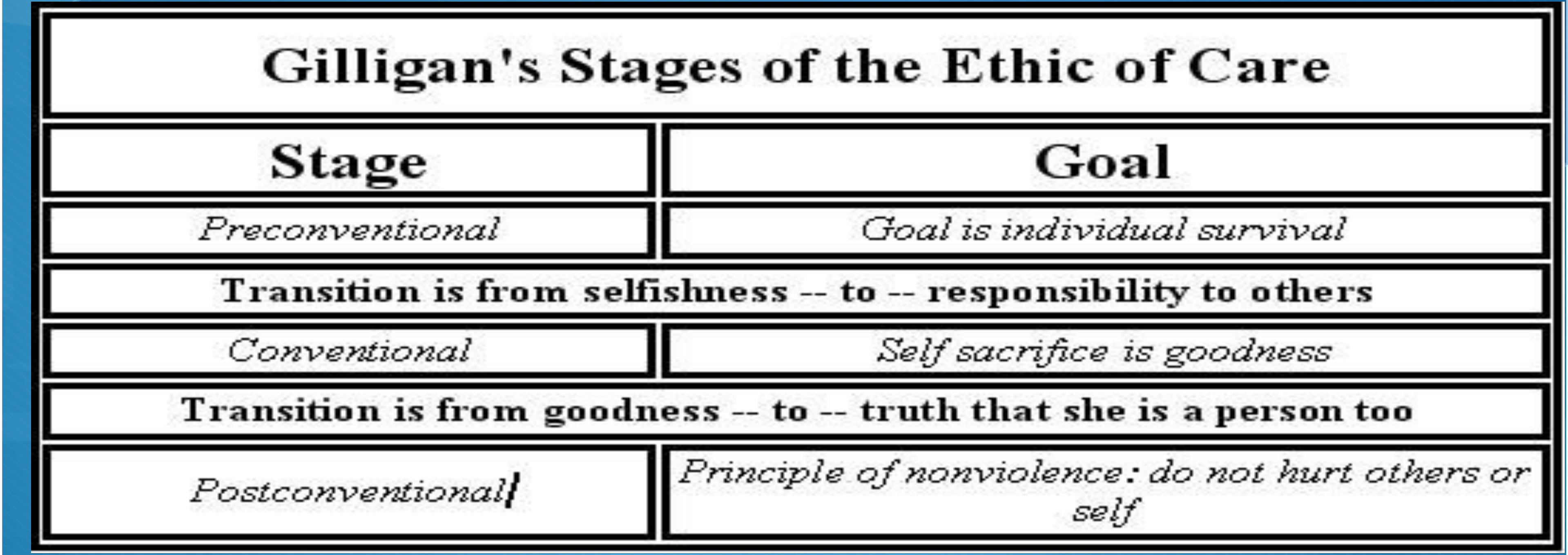
Level and Age	Stage	What determines right and wrong?
Preconventional: Up to the Age of 9	Punishment & Obedience	Right and wrong defined by what they get punished for. If you get told off for stealing then obviously stealing is wrong.
	Instrumental - Relativist	Similar, but right and wrong is now determined by what we are rewarded for, and by doing what others want. Any concern for others is motivated by selfishness.
Conventional: Most adolescents and adults	Interpersonal concordance	Being good is whatever pleases others. The child adopts a conformist attitude to morality. Right and wrong are determined by the majority
	Law and order	Being good now means doing your duty to society. To this end we obey laws without question and show a respect for authority. Most adults do not progress past this stage.
Postconventional:10 to 15% of the over 20s.	Social contract	Right and wrong now determined by personal values, although these can be over-ridden by democratically agreed laws. When laws infringe our own sense of justice we can choose to ignore them.
	Universal ethical principle	We now live in accordance with deeply held moral principles which are seen as more important than the laws of the land.

***most adults never reach stage 4; higher levels don’t exist in all cultures;**
5 & 6 don’t always emerge

Carol Gilligan’s Criticism of Kohlberg

- Sample was biased (all male)
- Men’s morality – law and justice (stage 4); women – compassion/care (stage 3) – women are therefore seen as less morally evolved
- Men – “ethics of justice”; women – “ethics of care” approach to moral problems

“the very traits that have traditionally defined the goodness of women, their care for and sensitivity to the needs of others, are those that mark them out as deficient in moral development.”



Gilligan's Stages of the Ethic of Care

Stage	Goal
Preconventional	*Goal is individual survival*
Transition is from selfishness -- to -- responsibility to others	
Conventional	*Self sacrifice is goodness*
Transition is from goodness -- to -- truth that she is a person too	
Postconventional	*Principle of nonviolence: do not hurt others or self*

Chapter 10: Personality

Crash Course: Rorschach and the Freudians

Crash Course: Measuring Personality

Quizlet

Personality

- Psychological qualities that bring continuity to an individual's behavior, thoughts and emotions in different situations and at different times throughout life

- NOT character or temperament (biological), though these are components of personality

I WANT TO BE WITH ICE CREAM.
I WANT TO BE LEFT ALONE.
PSYCH
JONNY HAWKINS

Banana Split Personality

© 2012 Jonny Hawkins

4 Main Perspectives in Personality Theory focus on the roles of the following in personality development:

- Psychodynamic - unconscious
- Behaviorist - environment
- Humanistic — individual conscious life experiences & choices
- Trait — focused not on development of personality, but on specific characteristics*

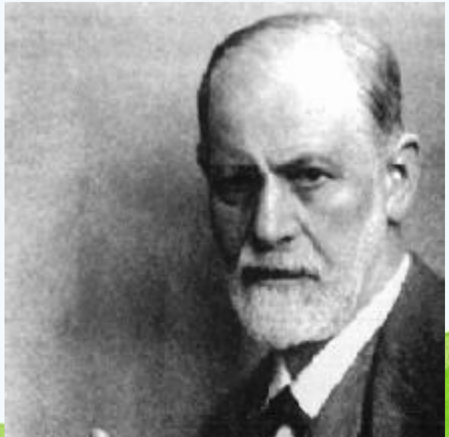
Was Freud Right about Hysteria??

Psychoanalytic Theory

- Freud's theory of personality
- Unconscious is source of impulses, motives and conflicts that energize the personality
- **we go about life unaware of the motives that drive our behavior

Psychoanalysis

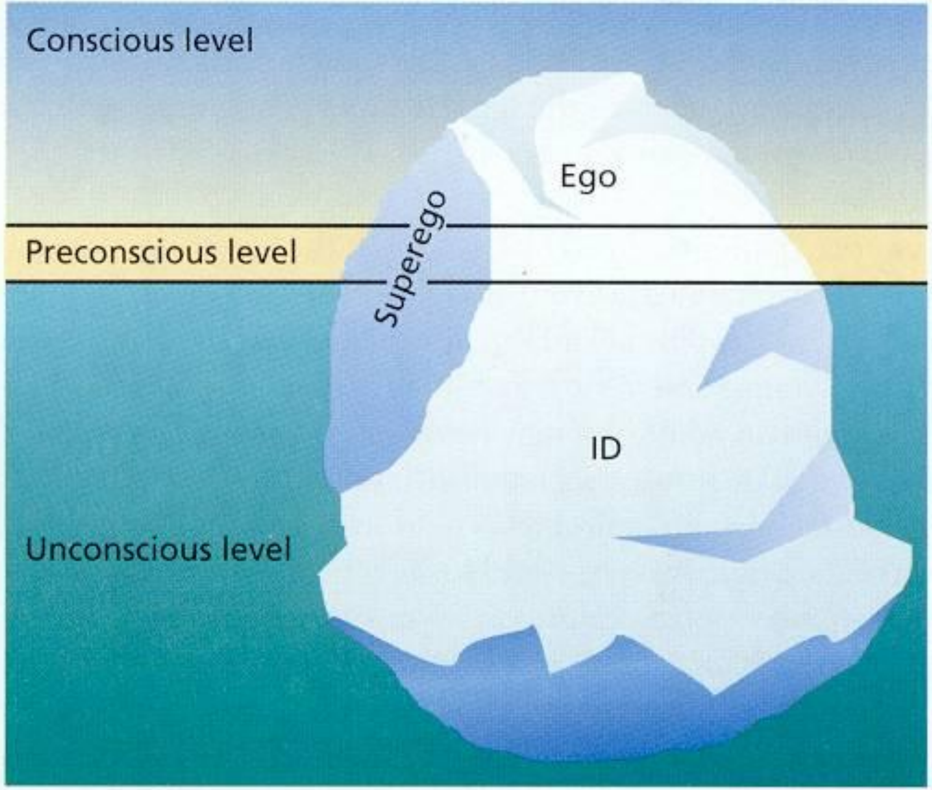
- Freud's system of treatment for mental disorders

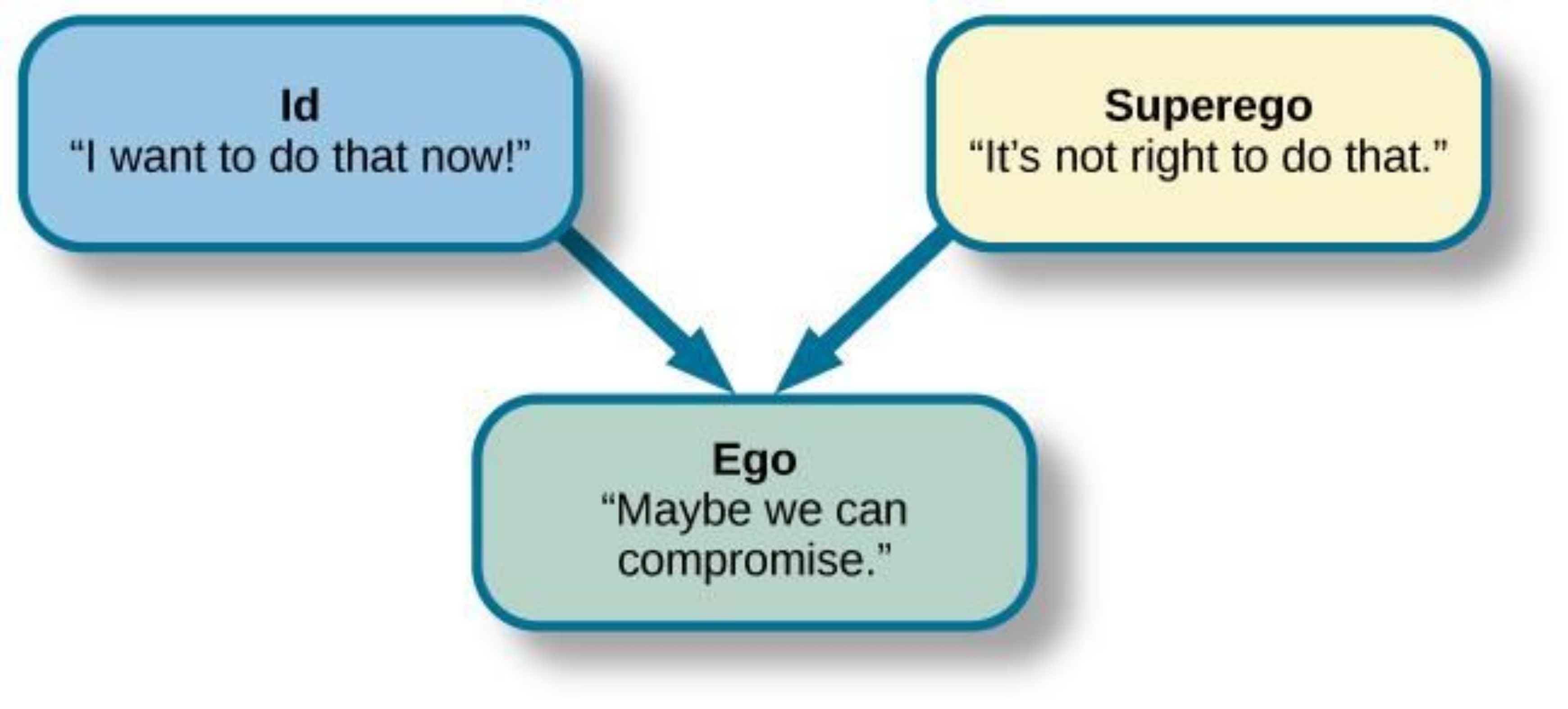


Freud Bio

Freud's Iceberg Model of the Mind

- Unconscious - part of our mind of which we are NOT AWARE
  - storehouse of repressed impulses, drives, and conflicts that are unavailable to consciousness
  - Contents are too threatening/anxiety provoking
  - When traumatic events escape unconscious they present as disorders – ie. Phobias, depression


Conscious level
Ego
Superego
Preconscious level
ID
Unconscious level

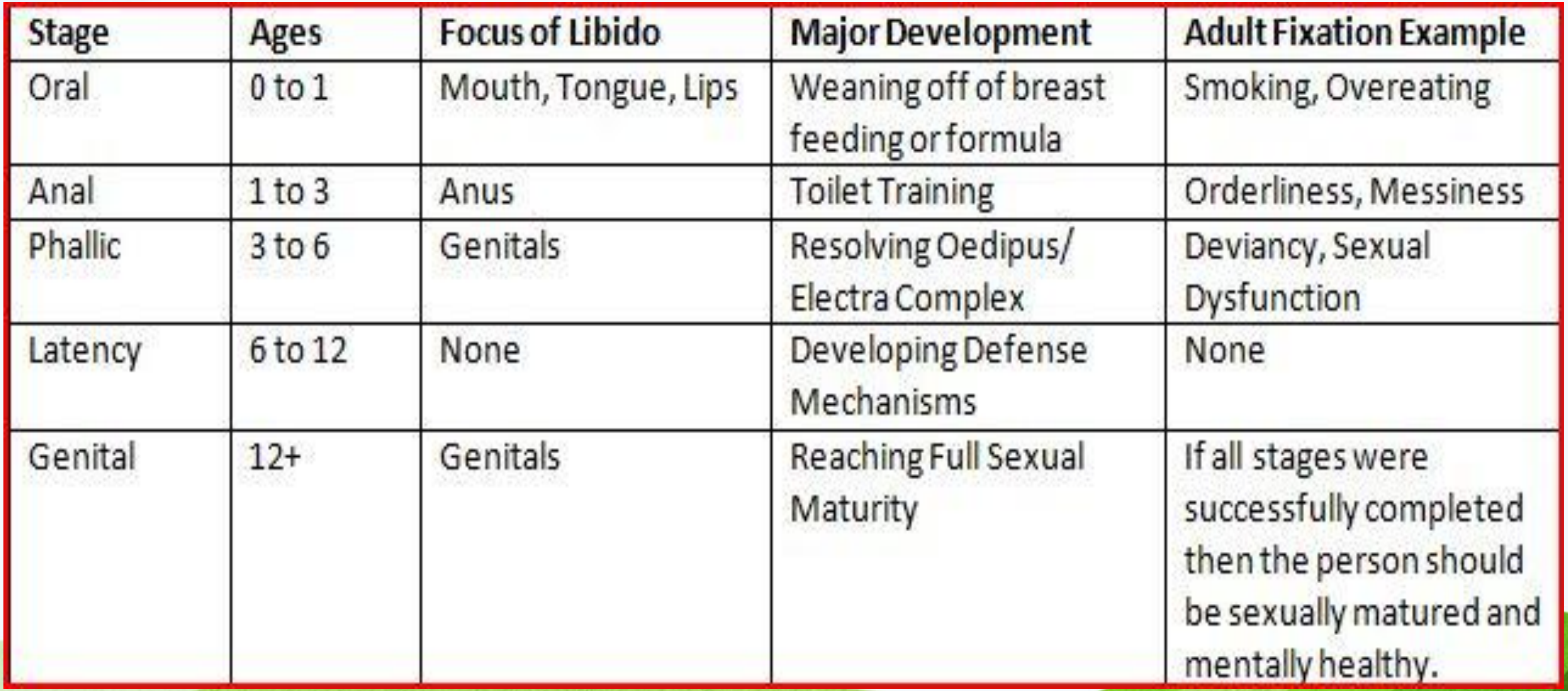


Id
“I want to do that now!”

Superego
“It’s not right to do that.”

Ego
“Maybe we can compromise.”

Fixation— Occurs when psychosexual development is arrested at an immature stage



Stage	Ages	Focus of Libido	Major Development	Adult Fixation Example
Oral	0 to 1	Mouth, Tongue, Lips	Weaning off of breast feeding or formula	Smoking, Overeating
Anal	1 to 3	Anus	Toilet Training	Orderliness, Messiness
Phallic	3 to 6	Genitals	Resolving Oedipus/ Electra Complex	Deviancy, Sexual Dysfunction
Latency	6 to 12	None	Developing Defense Mechanisms	None
Genital	12+	Genitals	Reaching Full Sexual Maturity	If all stages were successfully completed then the person should be sexually matured and mentally healthy.

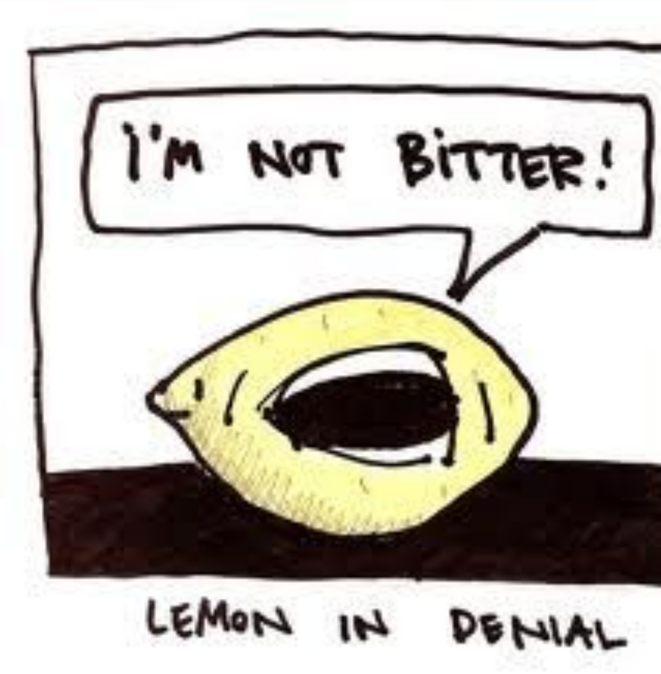
Questions: why do boys develop masculine identities when raised by mothers? Why are we typically attracted to members of the opposite sex? What do women want??

- *Identification* — The mental process by which an individual tries to become like another person, especially the same-sex parent
- *Oedipus complex* —a largely unconscious process whereby boys displace an erotic attraction toward their mother to females of their own age and, at the same time, identify with their fathers (due to castration anxiety — fear of emasculation by father as punishment)
- *Penis envy*— female desire to have a penis— a condition that usually results in their attraction to males; women have a "defective superego"
- Both should be resolved during phallic stage

**CRITICISM: Freud ignores different forms of socialization for boys and girls and GENETICS! No scientific evidence!

Ego Defense Mechanisms

- Largely unconscious mental strategies employed to reduce the experience of conflict or anxiety (*when id or superego don't get what they want this is stressful for the ego!*)
- Operate at the preconscious level
- Ego may "put a lid" on id's persistent unconscious desires — to do so it pushes extreme desires and threatening memories outside of conscious awareness into unconscious mind
- Only resolve problems temporarily; underlying conflict remains unresolved



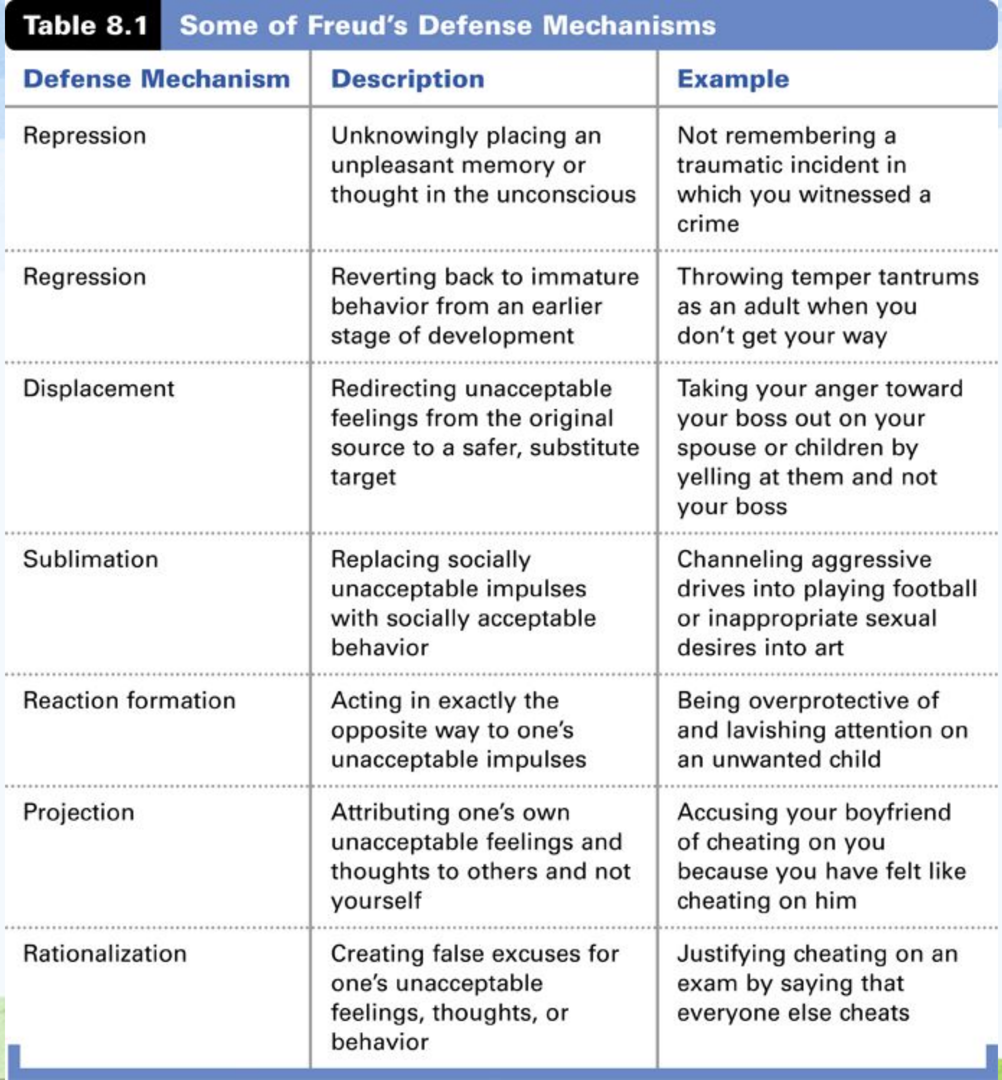


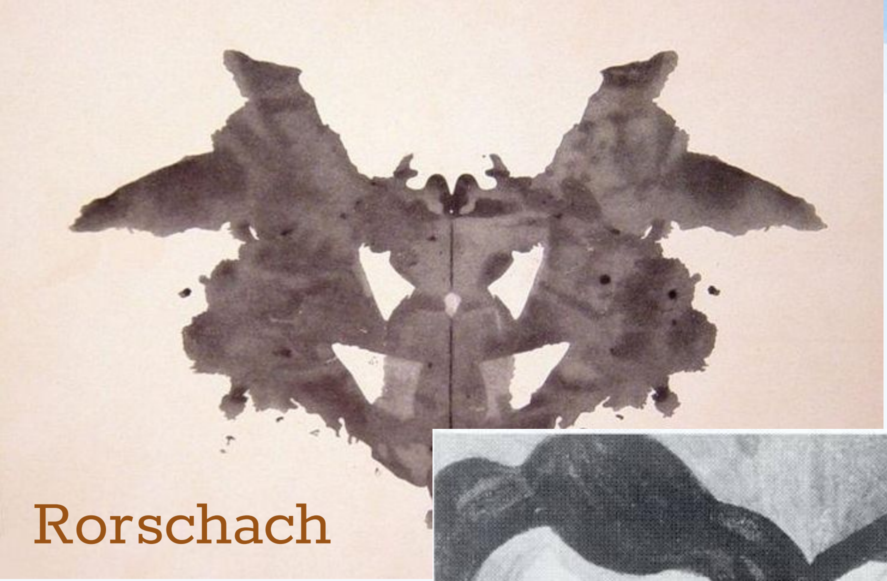
Table 8.1 Some of Freud's Defense Mechanisms

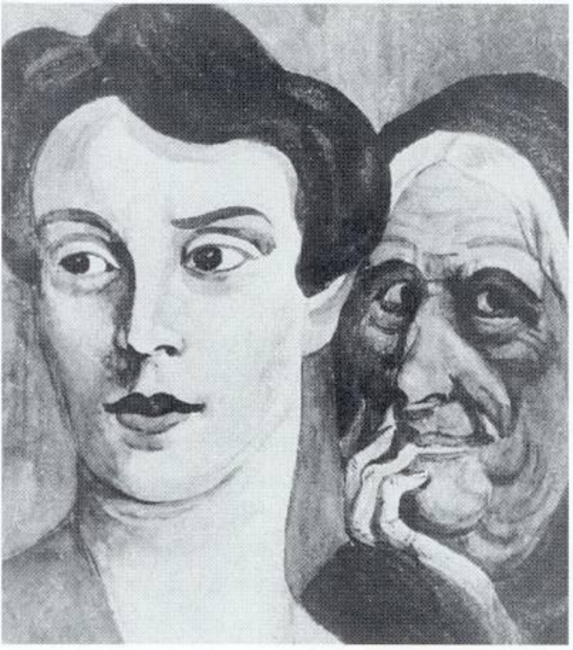
Defense Mechanism	Description	Example
Repression	Unknowingly placing an unpleasant memory or thought in the unconscious	Not remembering a traumatic incident in which you witnessed a crime
Regression	Reverting back to immature behavior from an earlier stage of development	Throwing temper tantrums as an adult when you don't get your way
Displacement	Redirecting unacceptable feelings from the original source to a safer, substitute target	Taking your anger toward your boss out on your spouse or children by yelling at them and not your boss
Sublimation	Replacing socially unacceptable impulses with socially acceptable behavior	Channeling aggressive drives into playing football or inappropriate sexual desires into art
Reaction formation	Acting in exactly the opposite way to one's unacceptable impulses	Being overprotective of and lavishing attention on an unwanted child
Projection	Attributing one's own unacceptable feelings and thoughts to others and not yourself	Accusing your boyfriend of cheating on you because you have felt like cheating on him
Rationalization	Creating false excuses for one's unacceptable feelings, thoughts, or behavior	Justifying cheating on an exam by saying that everyone else cheats

- Which defense mechanism is this??
- Johnny likes Jenny, but he makes fun of her and acts rude in her presence.

Projective Tests

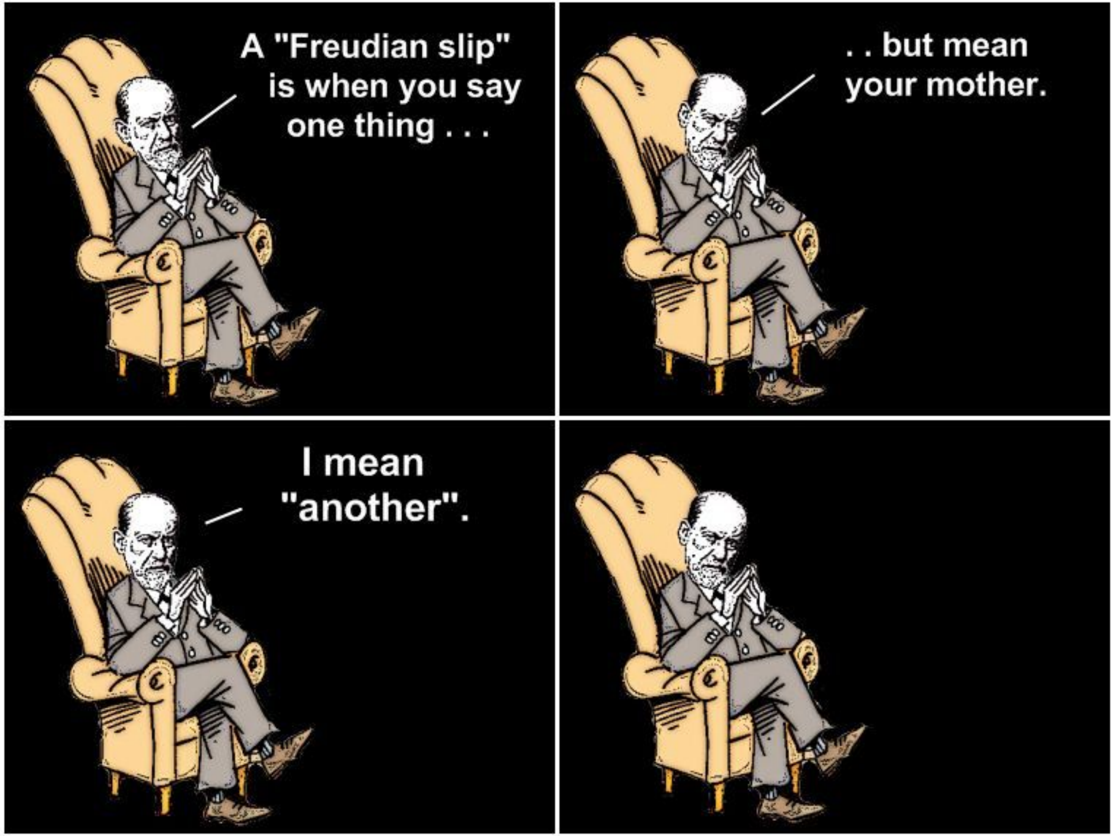
- Ambiguous images; personal will "project" hidden motives/conflicts onto the images
  - Rorschach inkblot technique — criticized for subjectivity
  - Thematic Apperception Test (TAT) — person perceives elements of picture and "apperceives" (fills in) personal interpretations based on his/her own thoughts/feelings


Rorschach


TAT

What's a "Freudian slip"?

- *Psychic determinism* — Freud's assumption that all mental and behavioral reactions are caused by unconscious traumas desires or conflicts
- **Freud - nothing we do is accidental

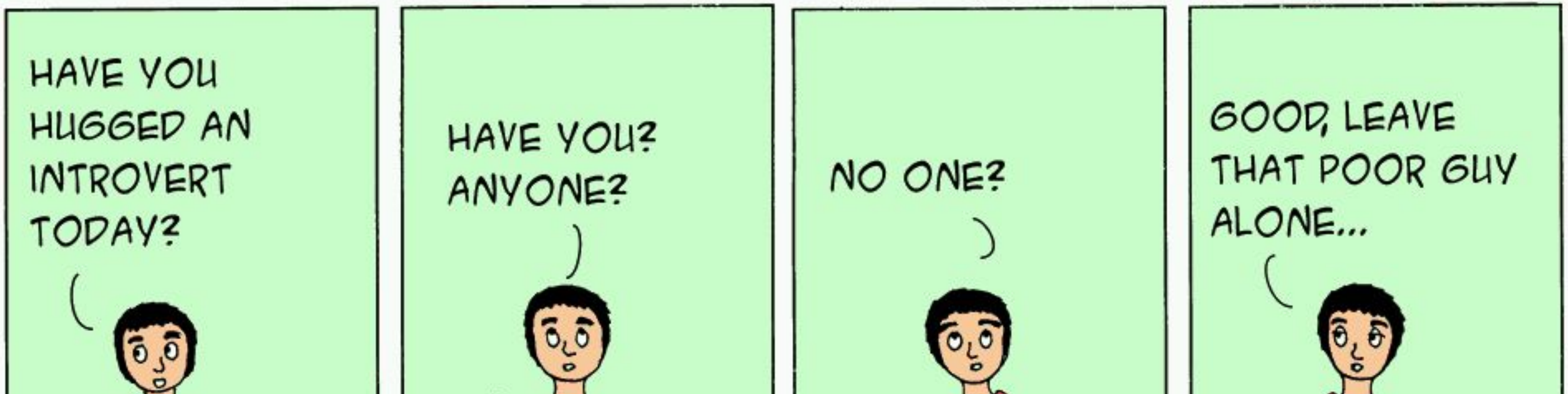

A "Freudian slip" is when you say one thing . . .
. . but mean your mother.
I mean "another".

Carl Jung: Extending the Unconscious

- *Personal unconscious* — Portion of the unconscious corresponding roughly to Freud's id
- *Collective unconscious* — Jung's addition to the unconscious, involving a reservoir for instinctive "memories" including the archetypes, which exist in all people
  - Archetype: ART, LITERATURE, FOLKTALES

Jung's Principle of Opposites: each personality as a balance between opposing pairs of unconscious tendencies

- *Introversion* — The Jungian dimension that focuses on inner experience—one's own thoughts and feelings, making the introvert less outgoing and sociable than the extrovert
- *Extraversion* — The Jungian personality dimension involving turning one's attention outward, toward others


HAVE YOU HUGGED AN INTROVERT TODAY?
HAVE YOU? ANYONE?
NO ONE?
GOOD, LEAVE THAT POOR GUY ALONE...

Karen Horney: A Feminist Voice in Psychodynamic Psychology

- *Basic anxiety* — An emotion that gives a sense of uncertainty and loneliness on a hostile world and can lead to maladjustment
- *Neurotic needs — Signs of neurosis in Horney's theory, these ten needs are normal desires carried to a neurotic extreme*
    - *Affection, approval, power/control over others, personal achievement…*

Alfred Adler:
An early split from Psychoanalysis

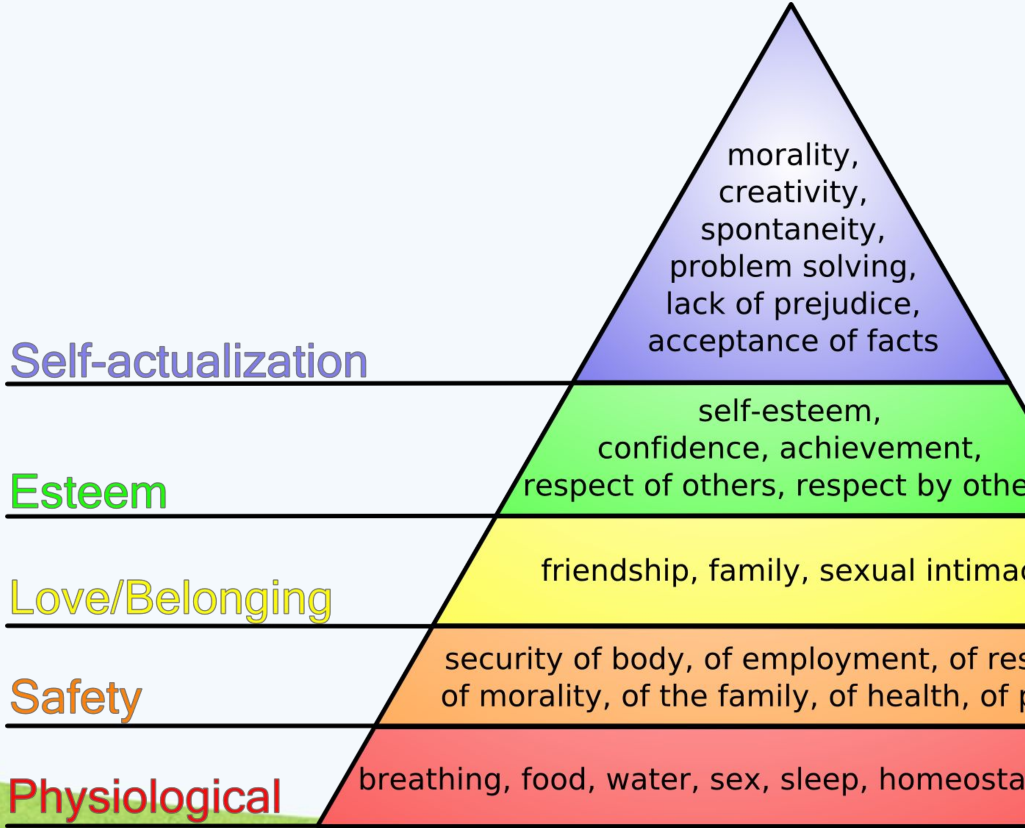
- *Inferiority complex* –
  A feeling of inferiority that is largely unconscious with it roots in childhood
- *Compensation* –
  Making up for one's real or imagined deficiencies
  - For example, individuals with poor family lives may direct their energy into excelling above and beyond what is required at work.

Gordon Allport and the Beginnings of Humanism

- *Traits* — Stable personality characteristics that are presumed to exist within the individual and guide his or her thoughts and actions under various conditions
  - *Central traits* form the basis of personality
  - *Secondary traits* include preferences and attitudes
  - *Cardinal traits* define peoples lives

Abraham Maslow and the Healthy Personality

- *Self-actualizing personalities* — creative, good humored, spontaneous, but know limits
- Feel free to pursue potential
- Peak experiences: moments of pure joy and elation; elusive (only 2% have had them); increase personal awareness; spitirual



Self-actualization

morality, creativity, spontaneity, problem solving, lack of prejudice, acceptance of facts

Esteem

self-esteem, confidence, achievement, respect of others, respect by othe

Love/Belonging

friendship, family, sexual intima

Safety

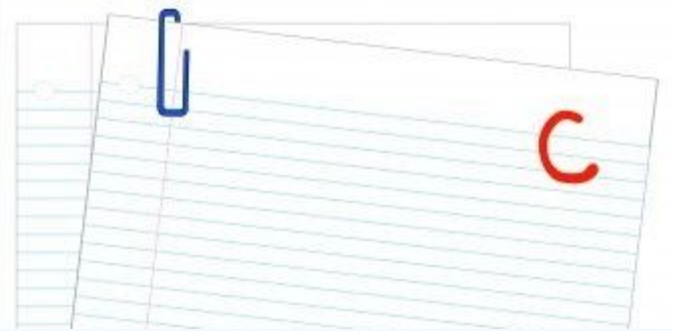
security of body, of employment, of re
of morality, of the family, of health, of

Physiological

breathing, food, water, sex, sleep, homeosta

Carl Rogers' Fully Functioning Person

- healthy, self-actualizing individual, who has a self-concept that is positive and congruent with reality
- *Phenomenal field* — Our psychological reality: perceptions and feelings
  - We respond to SUBJECTIVE experience, not object reality
- Unconditional positive regard — Love or caring without conditions attached (ie. Good behavior)



How might 2 people view this differently?

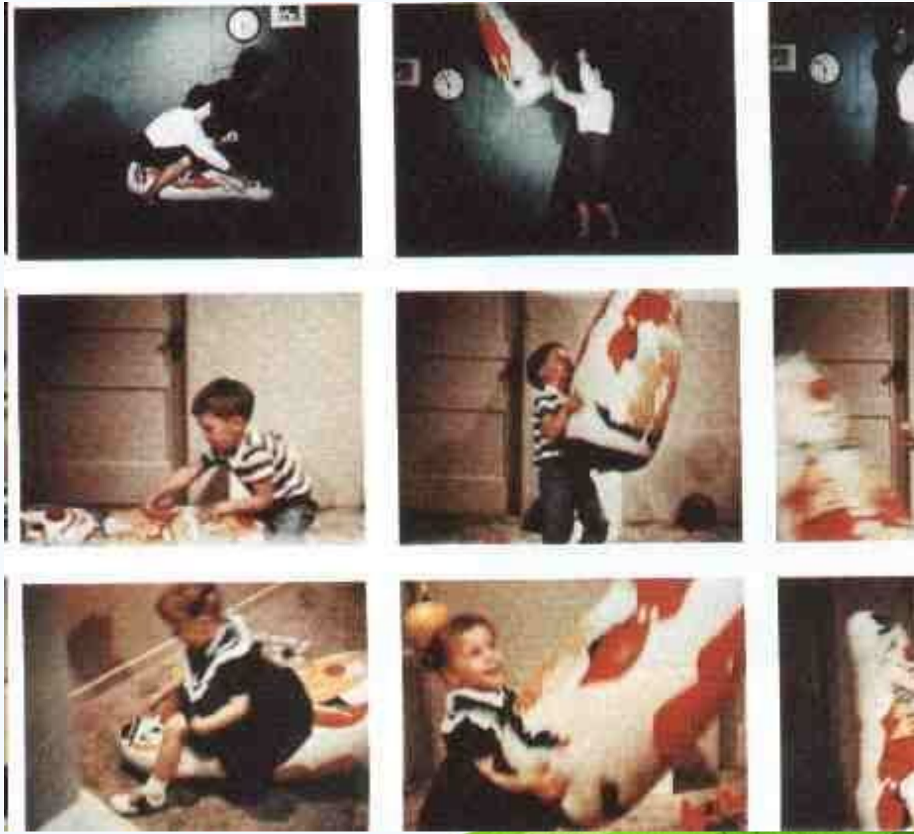
Positive Psychology

- Movement within psychology focusing on the desirable aspects of human functioning, as opposed to an emphasis on psychopathology
  - Optimism, happiness, social support, health
  - Emphasis on human functioning than personality

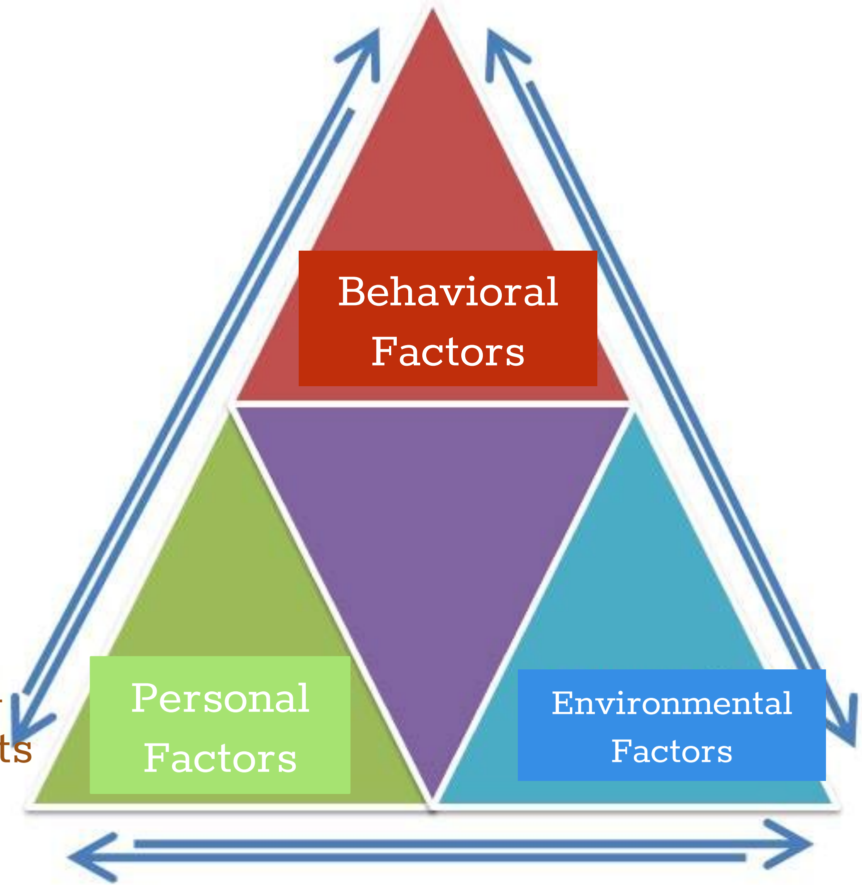
Personality is a collection of learned behavior

Bandura

- *Observational learning* —learning new responses by watching the behavior of others
  - Vicarious learning
- *Reciprocal determinism* — Process in which the person, behaviors and environment mutually influence each other



Bandura's Triadic Reciprocal Determinism



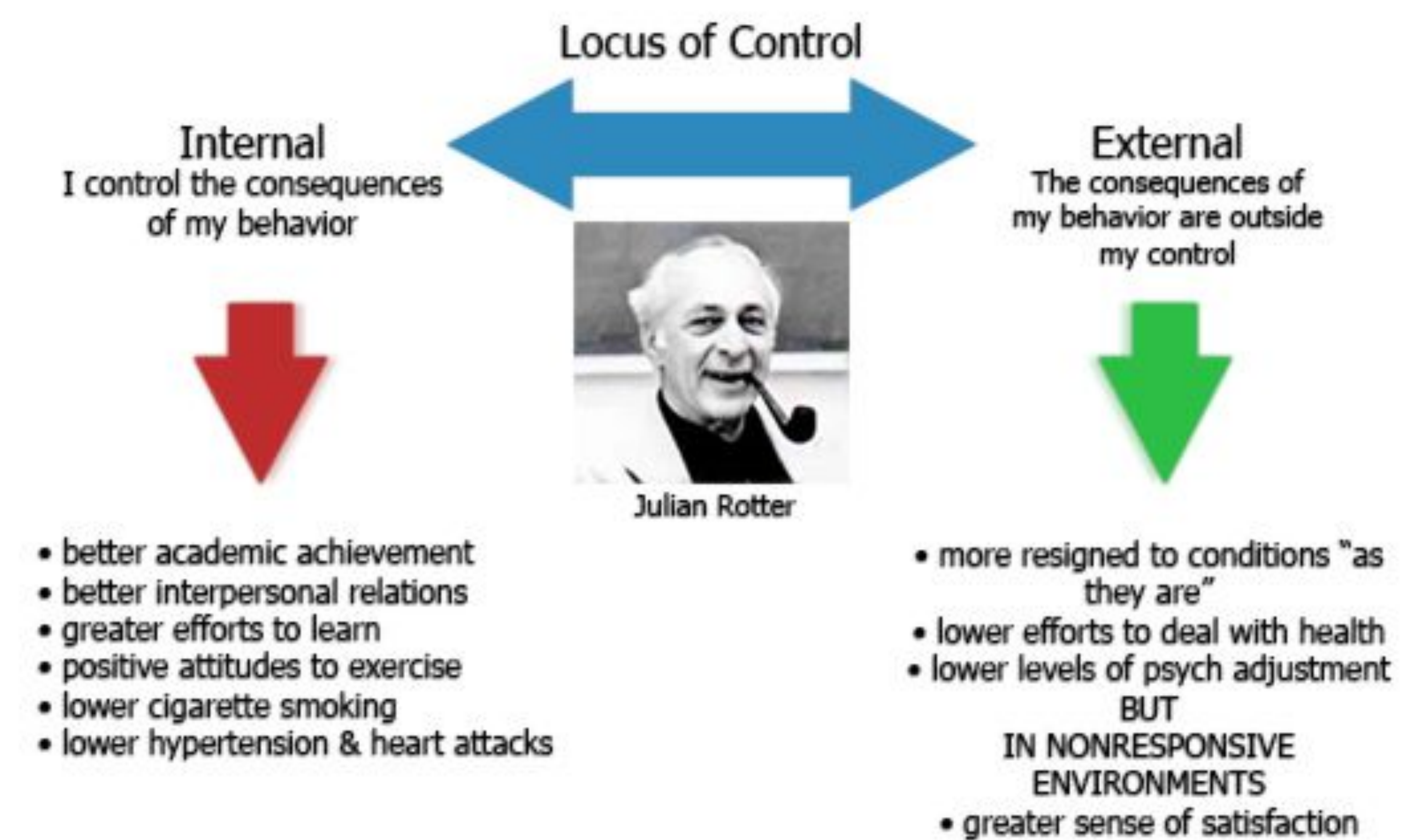
Behavioral Factors

Cognitive and biological events

Personal Factors

Environmental Factors

Locus of Control (Rotter) - An individual's sense of where his or her life influences originate



Locus of Control

Internal

I control the consequences of my behavior

- better academic achievement
- better interpersonal relations
- greater efforts to learn
- positive attitudes to exercise
- lower cigarette smoking
- lower hypertension & heart attacks

Julian Rotter

External

The consequences of my behavior are outside my control

- more resigned to conditions "as they are"
- lower efforts to deal with health
- lower levels of psych adjustment

BUT

IN NONRESPONSIVE ENVIRONMENTS

- greater sense of satisfaction

Temperament

Dominant "theme" of personality

ie. Shy, bold, adaptive, intense, attention span

Traits

Dimensions of personality

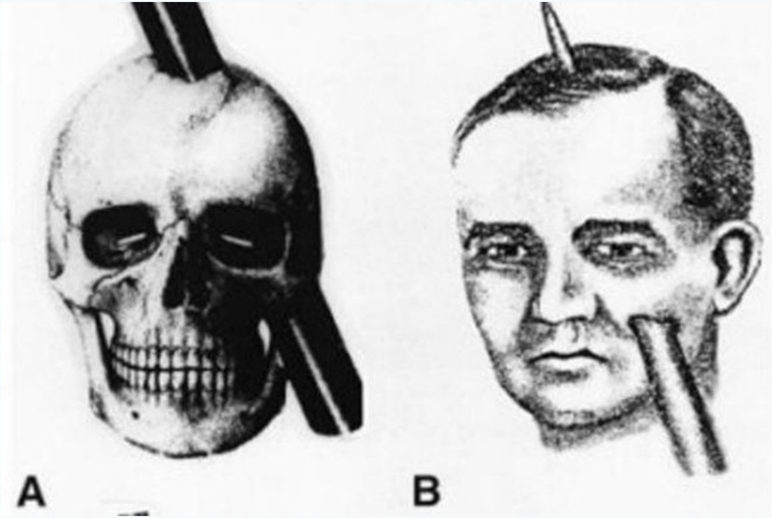
Ie. Moody, cheerful, enthusiastic, melancholy, volatile, smart

Type

Clusters of traits found in the same patterns in many people (MBTI)

Temperament

- Inherited personality dispositions; noticeable in early childhood; “theme” — shyness, moodiness, boldness…
- Brain: frontal lobes
- Neurotransmitters: we’ve all got the same ones but a slightly different mix!



Remember this guy??

Trait Theory - Gordon Allport

- *Central traits* dominate a person's entire life (ex. Hitler — hatred)
- *Cardinal traits* general characteristics — basis of personality (ex. intelligent, honest, shy)
- *Secondary traits* include preferences and attitudes — appear only in certain situations (ex. getting anxious speaking to a group, impatient while waiting in line)

Barnum Effect

- “there’s a sucker born every minute”
- tendency to accept certain information as true, such as character assessments or horoscopes, even when the information is so vague as to be worthless.

Assessing *Traits:*

- Minnesota Multiphasic Personality Inventory (MMPI-2)
- The Big Five Factor Inventory

MMPI-2

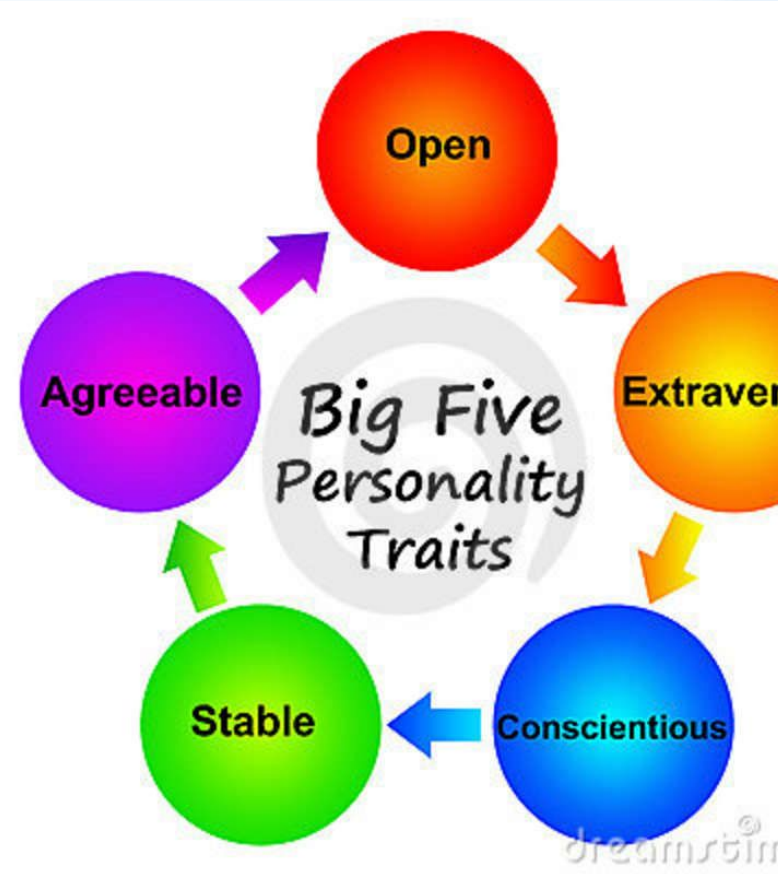
- Questions are empirically derived — selected from a large pool questions on which particular diagnostic groups differed (ex. people with depression, hypochondriasis, schizophrenia, etc.)
- assesses ABNORMAL personality tendencies (NOT enduring traits)
  - Reliable and valid (ID's depression & other disorders)
  - Some Qs are Western-culture specific
- Built in "lie scale"

5 Factor Theory

O.C.E.A.N.

- MOTIVATIONAL + EMOTIONAL CHARCTERITICS = PERSONALITY
- (excludes IQ, skills and creativity)
- 5 dominant personality characteristics
- Each dimension is bipolar; range from high to low on trait

**simplifies personality, has cross-cultural validity


Open
Extraver
Conscientious
Stable
Agreeable
Big Five Personality Traits
dreamstim

Regret Free Life

DEFINING THE RELATIONSHIP

The Big 5 | Personality Indicators

	LOW (1)	HIGH (5)
OPENNESS	Practical; rational; skeptical; shies away from “new”	Loves “new”; intellectually curious; creative; adventurous
CONSCIENTIOUS	Easygoing; relaxed; spontaneous; not many rules;	Disciplined; efficient; organized; responsible
EXTROVERSION	Likes solitary time; shy; reserved; quiet; independent	Outgoing; enthusiastic; active; novelty-seeking;
AGREEABLENESS	Uncooperative; antagonistic; suspicious;	Cooperative; kind; affectionate; friendly
NEUROTICISM	Not easily bothered; secure; emotionally resilient	Tense; moody; anxious; sensitive; prone to negative

Assessing *Type:*
Myers-Briggs Type Indicator (MBTI)

**widely administered, though doesn’t withstand test-rest reliability & validity is questionable — studies show no relationship between personality & performance at a particular job

Makes Decisions by:	**Thinker** Uses their heads, Go with what makes sense Is persuaded by facts, figures, and statistics Logical, Weighs pros and cons, task focused	**Feeler** Uses their heart, Go with what feels right Is persuaded by emotion, Relies on intuition Relationship-focused, Appreciates other viewpoints Starts w/ pleasantries then summarizes agreements
Energized by:	**Introvert** Keeps feelings inside, Listen more than they talk Likes to work solo, Tend to be private Uses memos and e-mails, Think before talking	**Extrovert** Loves to communicate, Is talkative Involves others, Tends to be a public person Wants face-to-face contact, Talks first – thinks later
Resolves Issues by:	**Judger** Works towards a solution, See a better future Believes time is a fixed resource Believes deadlines are important, Likes to complete projects, Dogmatic, Wants conclusion	**Perceiver** Keeps options open – may procrastinate Feels restricted by schedules and deadlines Flexible – may be seen as wishy-washy Believes time is renewable and deadlines flexible
Pays Attention to:	**Sensor** Prefers facts, evidence, examples first Asks questions like ‘what’ and ‘how’ Interested in short-term practical applications Likes step-by-step and real life experiences	**Intuitive** Prefers ‘Big Picture’ ideas first Asks questions ‘why’ Interested in long-term and future possibilities Uses metaphors and analogies

Personality Across Cultures

- Assumptions people make vary widely depending especially on whether the culture emphasizes individualism or collectivism

Individualism	**Collectivism**
• Individual = basic unit of society • Unique identities, motivated to stand out • Competitive • High need for achievement (motivation) • **fundamental attribution error more common	• Family/social groups = basic unit of society • Identities blend w/ group • Individual is incomplete w/o group • Cooperative • Lower need for achievement

Chapter 11: Testing & Individual Differences

Crash Course: Intelligence

Quizlet

The Flynn Effect

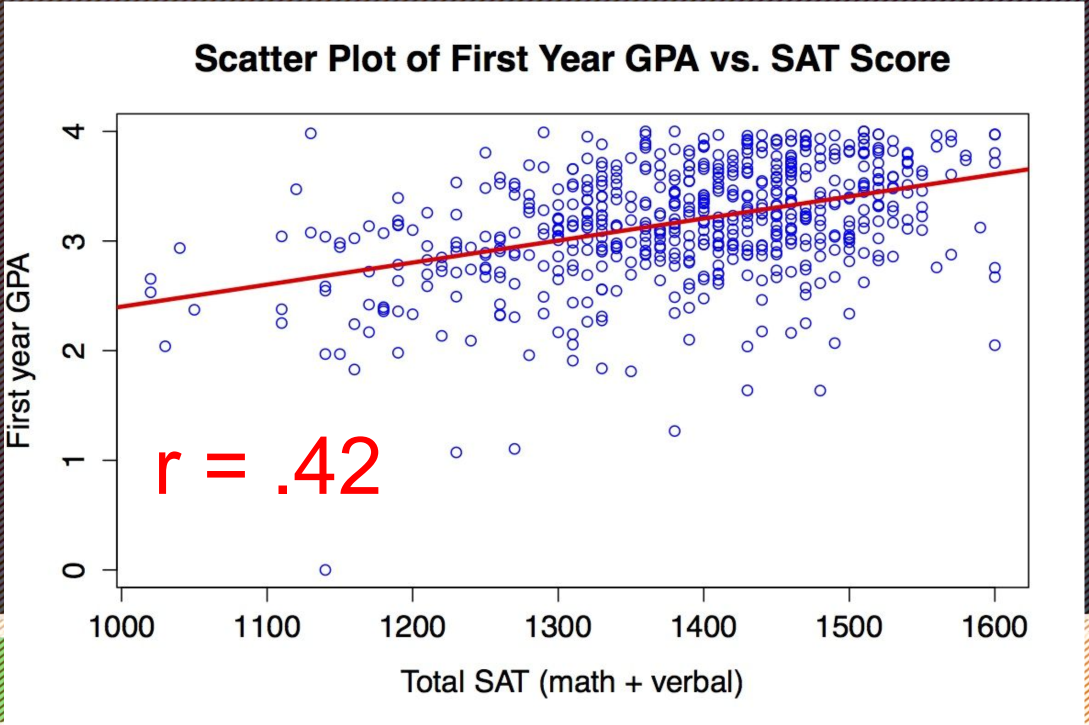
- substantial and long-sustained increase in IQ test scores measured in many parts of the world from roughly 1930 to the present day

Validity and Reliability

- *Validity* – a test that measures what it purports to measure
  - Face validity – understandable (ex. language)
  - Content validity – items representative of a larger body of knowledge
    - Item analysis – items are all related to learning objectives
  - Criterion validity – perf. on test measured against perf. goal (proficiency)

Predictive Validity

ability of a test to predict future performance



Validity and Reliability

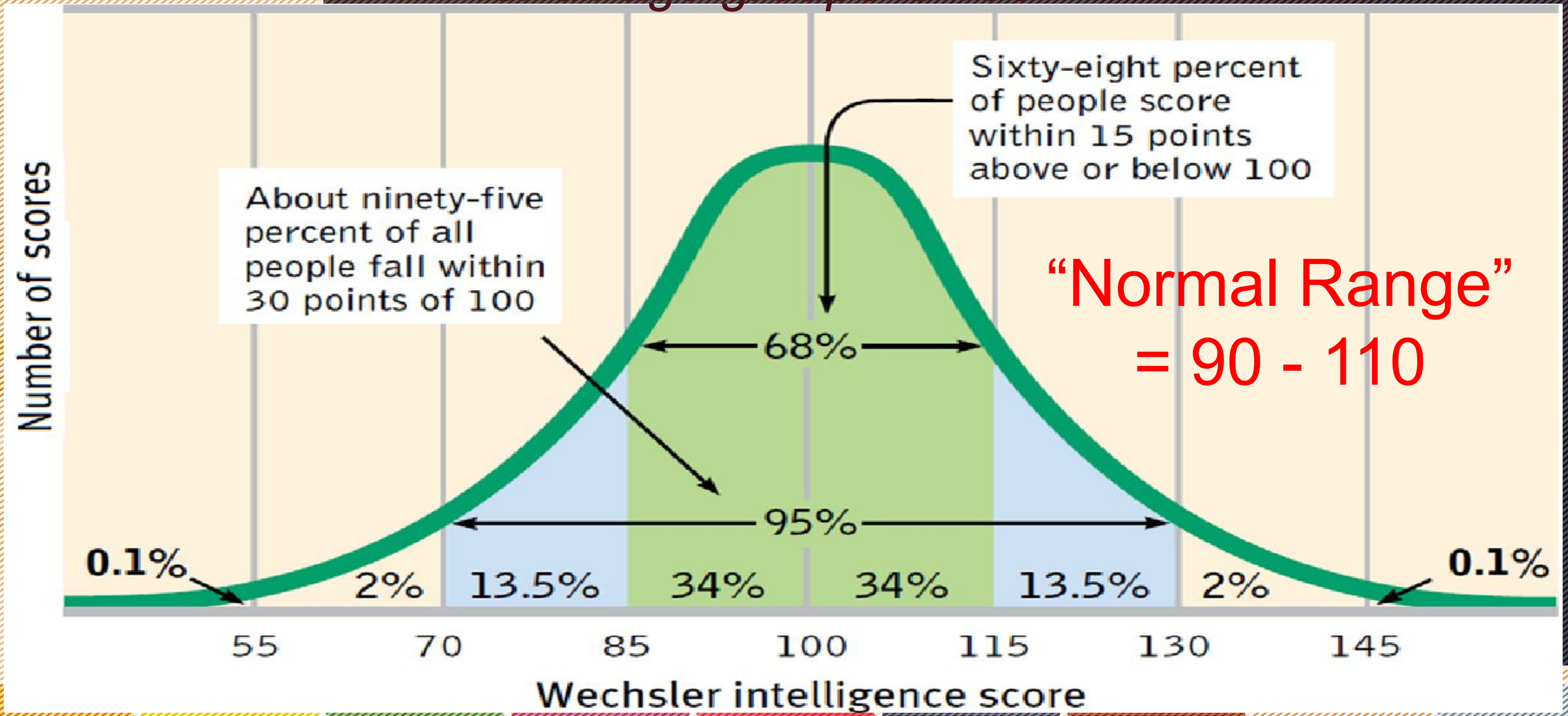
- *Reliability* – a test that yields the same results over time
  - Test-retest reliability
  - Split-half reliability (same score on odd & even #s)

Standardization and Norms

- Scientists use statistics to establish a normal curve
- This curve can be used to describe most phenomena
  - *Normal range* – Scores falling near the middle of a normal distribution

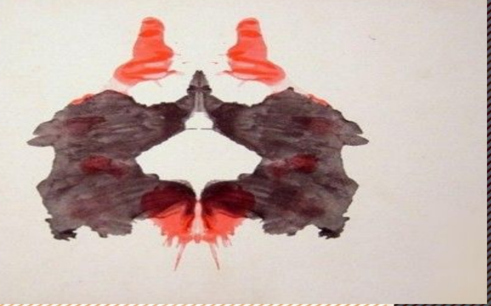
***We use standardization & norms in testing to compare individuals*

IQ scores are statistically adjusted so that the average for all age groups is 100



“Normal Range”
= 90 - 110

Types of Tests



- *Objective tests* can be scored easily by machine (MMPI, Myers-Briggs)
- *Subjective tests*, individuals are given an ambiguous figure or an open-ended situation and asked to describe what they see or finish a story (Rorschach, TAT projective tests)
  - *Inter-rater reliability* measures how similarly two different test scorers would score a test

Ethical concerns related to testing involve:

- The confidentiality of the test results
- How to report the results
- How to use the test to compare individuals
- The impact of tests on society as a whole

A Brief History

- Binet-Simon Test calculated a child's mental age and compared it to his or her chronological age
- In America, testing became widespread for the assessment of Army recruits, immigrants, and schoolchildren
- **The Stanford-Binet Intelligence Scale is the most respected of the new American tests of intelligence
- **Wechsler – Adult Intelligence Scale (WAIS), Intelligence Scale for Children (WISC) & Preschool and Primary Scale of Intelligence (WPPSI)

**individual tests – given in one-on-one setting

How is Intelligence Measured?

- *Intelligence quotient* –The original IQ calculation was abandoned (not appropriate for adults) in favor of standard scores based on the normal distribution

$$\frac{\text{MA (Mental Age)}}{\text{CA (Chronological Age)}} \times 100 =$$

Mental age: how old is the average child when they score that high on the test?

Wechsler Assessments

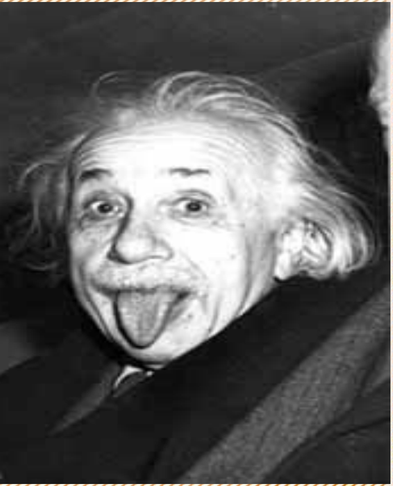
- Measure:
  - Vocabulary, verbal comprehension, arithmetic ability, similarities, digit span (repeating a series of digits after the examiner), block design

WISC-IV
Administration and Scoring Manual
Technical and Interpretive Manual
1
2
3
Stimulus Book
1
2
3
4
5
6
7
8
9
10

Intellectual Developmental Disorder

- *(formerly "mental retardation"*– significant sub average intellectual functioning; limits in 2 of the following areas:
  - Communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure & work
  - Causes:
    - Genetic - Trisomy 21 (Downs Syndrome)
    - Environmental – prenatal teratogens, postnatal accidents, extreme deprivation

Giftedness



- Lewis Terman – longitudinal studies of 1528 children yielded:
  - Strong positive correlation between IQ and academic achievement
  - High rates of health, happiness,
  - No “Einsteins”!

**no guarantee of wealth; in addition to high IQ, extreme motivation and support from home were critical

What Are the Components of Intelligence?

- *Savant syndrome* – Found in individuals who have a remarkable talent even though they may have serious mental disabilities

“Brain Man” (60 minutes)

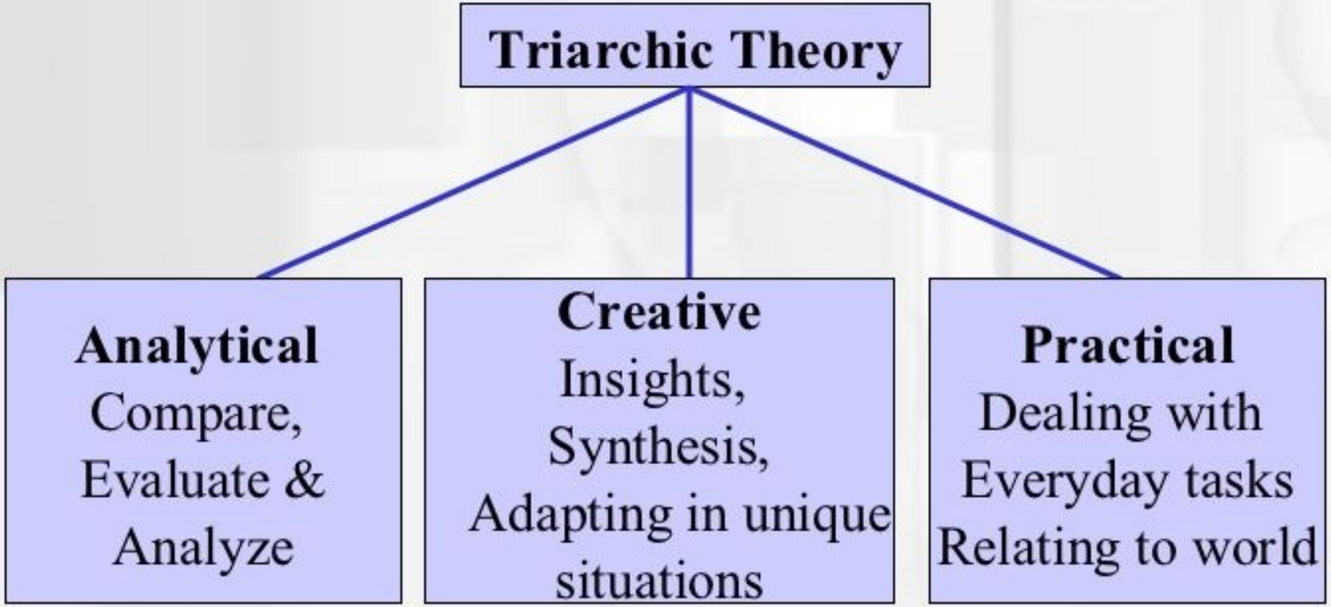
One or many intelligences?? Psychometrics v. the Cognitive Explanation

Psychometrics – field of "mental measurements"

- *Charles Spearman's "g (general) Factor"* – general intelligence is an innate single factor that extends across all intellectual domains
  - Perhaps its location is in the frontal lobes?
- Raymond Cattell – divides "g" into 2 types:
  - Crystallized intelligence – ability to store and retrieve from semantic memory; general knowledge; grows through adulthood
  - Fluid intelligence – abstract thinking, problem solving; declines w/ age beg. after 25

Sternberg’s Triarchic Theory

- Emphasizes how 3 types of abilities work together to create intelligent behavior



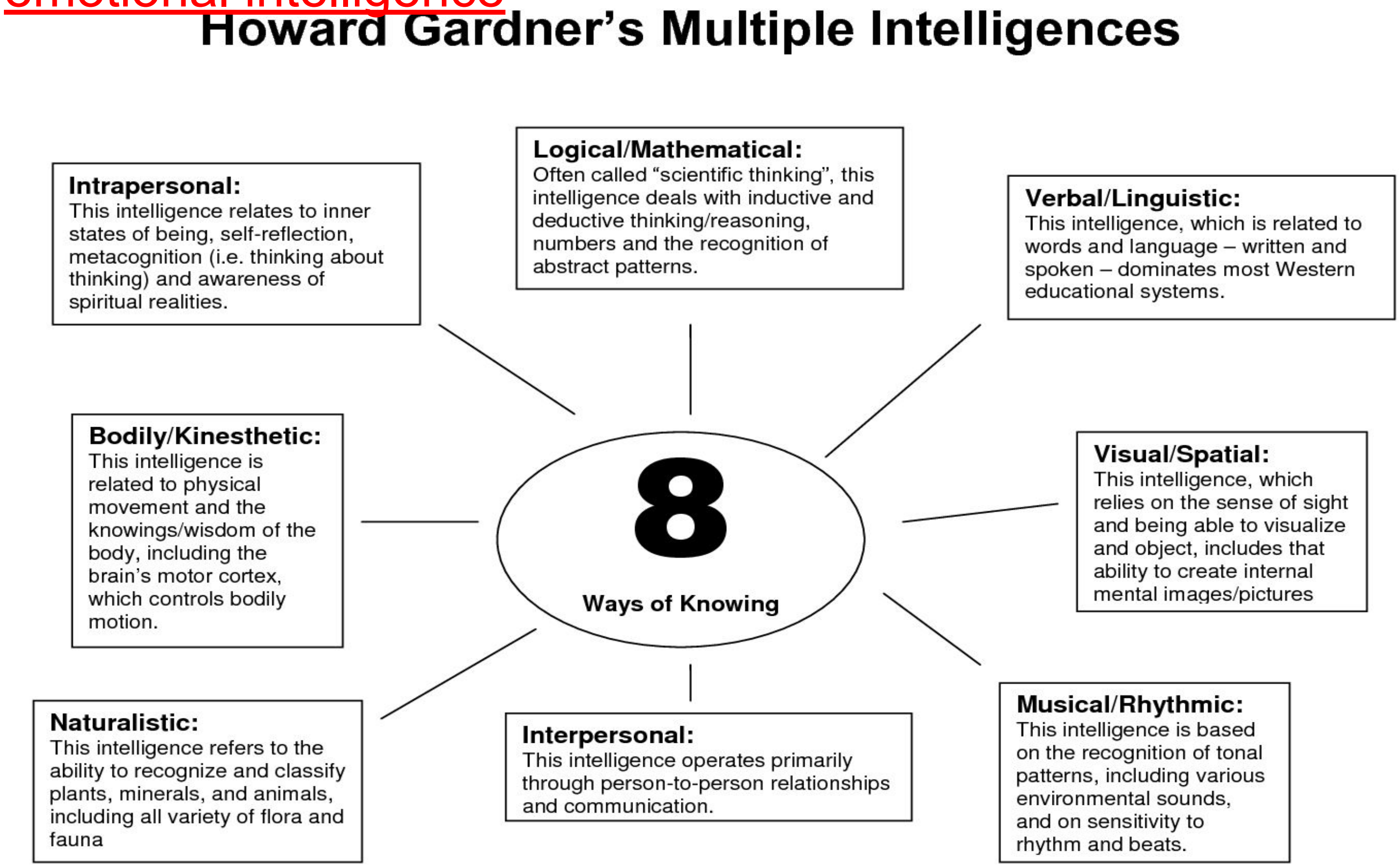
Triarchic Theory

Analytical
Compare,
Evaluate &
Analyze

Creative
Insights,
Synthesis,
Adapting in unique situations

Practical
Dealing with
Everyday tasks
Relating to world

Inter and intrapersonal – sometimes referred to as emotional intelligence



Howard Gardner's Multiple Intelligences

8

Ways of Knowing

Intrapersonal:
This intelligence relates to inner states of being, self-reflection, metacognition (i.e. thinking about thinking) and awareness of spiritual realities.

Logical/Mathematical:
Often called "scientific thinking", this intelligence deals with inductive and deductive thinking/reasoning, numbers and the recognition of abstract patterns.

Verbal/Linguistic:
This intelligence, which is related to words and language – written and spoken – dominates most Western educational systems.

Bodily/Kinesthetic:
This intelligence is related to physical movement and the knowings/wisdom of the body, including the brain's motor cortex, which controls bodily motion.

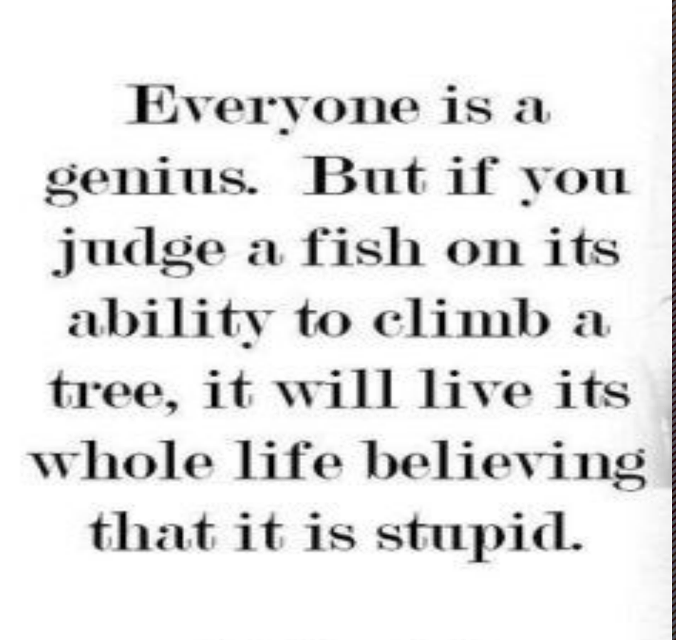
Visual/Spatial:
This intelligence, which relies on the sense of sight and being able to visualize and object, includes that ability to create internal mental images/pictures

Naturalistic:
This intelligence refers to the ability to recognize and classify plants, minerals, and animals, including all variety of flora and fauna

Interpersonal:
This intelligence operates primarily through person-to-person relationships and communication.

Musical/Rhythmic:
This intelligence is based on the recognition of tonal patterns, including various environmental sounds, and on sensitivity to rhythm and beats.

Self Fulfilling Prophecy (Rosenthal)



Everyone is a genius. But if you judge a fish on its ability to climb a tree, it will live its whole life believing that it is stupid.

- Labels have POWER!!
- students who were told their rats were brighter – observation/data influenced
- Students whose teachers were told they were “spurters” saw significant gains in IQ!

How Do Psychologists Explain IQ Differences Among Groups?

Nature v. Nurture Debate:

- Hereditarian arguments maintain that intelligence is substantially influenced by genetics (twin and adoption studies support this)
- Environmental approaches argue that intelligence can be dramatically shaped by influences such as
  - Health
  - Economics
  - Education

Heritability and Group Differences

- *Heritability* – Amount of trait variation within a group, raised under the same conditions, that can be attributed to genetic differences; group probability estimate
- Heritability is NOT THE SAME as heredity!!
- *Heritability says nothing about between-group differences*

Heritability

- Low heritability – identical (MZ) twins have identical genetics, so any variation in traits must be environmental (heritability is near 0 for MZ twins)
- High heritability – people raised in identical environments, trait variation must be attributed to genetic variation

*****high degree of heritability does not mean that the environment has NO IMPACT!!***

Example 1

- 5 fingers on hand – high or low heritability?
- LOW – source of variation must be environmental influences (prenatal teratogens, accidents, etc.)

source

Example 2

It appears as though the whole Inuit population has the same alleles for hair color. Is the heritability for hair color high or low?

LOW! In fact, it is 0.00 because there is no genetic variation for hair color and heritability is the proportion of variation between individuals in a given population

**inherited and heritability are almost opposite in meaning – the more inherited a trait is, the less heritable it is!

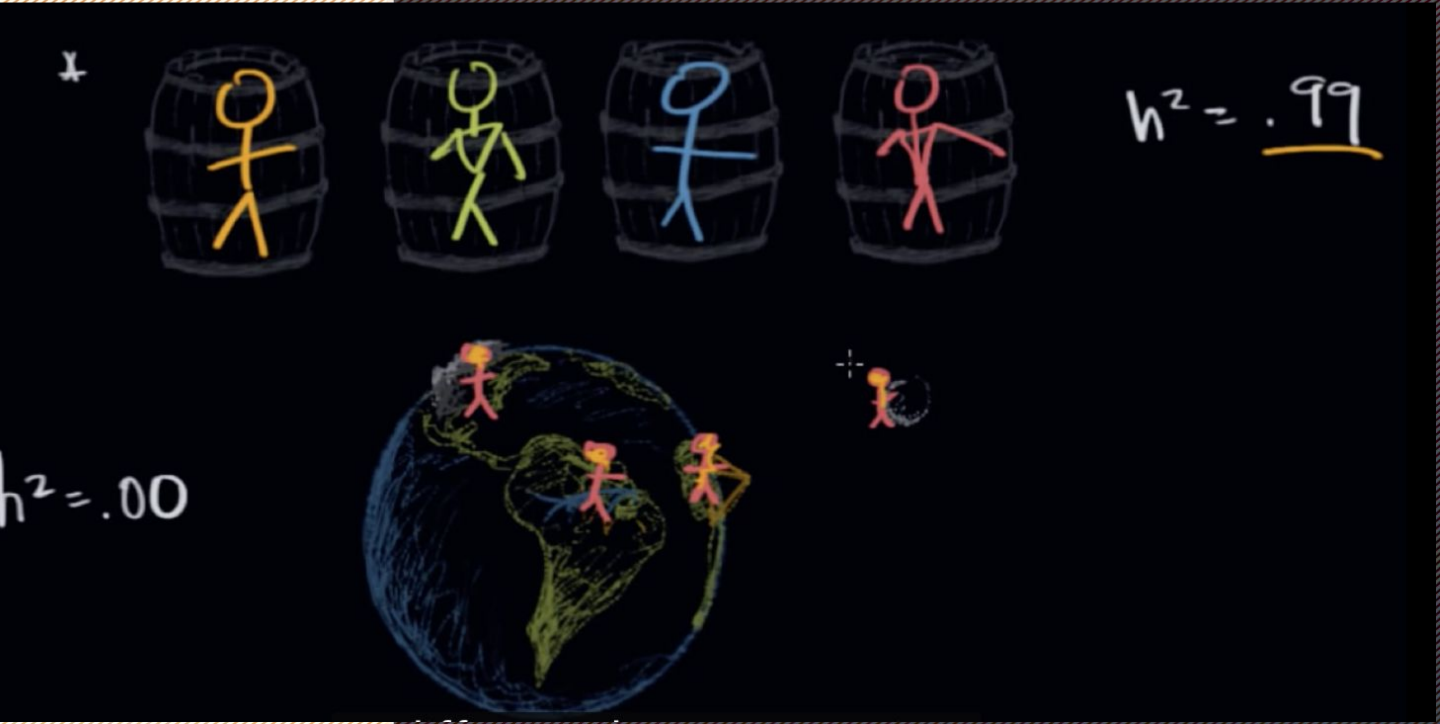
source

Heritability & IQ

- IQ is highly heritable – kids raised in same environments – any variation must be genetic (adults
  - MZ twins have little variation in IQ
- ENVIRONMENT STILL MATTERS!!
- Says nothing of differences BETWEEN groups
  - Two groups could be genetically similar but environmental factors prevent one group from reaching full potential

Heritability Practice

- 4 boys were raised in identical barrels until the age of 12. They were cared for in exactly the same way (same feeding schedule, diet, etc.). When they were released, they took an IQ test. High or low heritability?
- identical quadruplets were raised in different environments across the globe, and one was even raised on the moon! High or low heritability?


$h^2 = .99$
$h^2 = .00$

What accounts for group differences?

- Arthur Jensen controversy (69) – claimed racial diff. in IQ have genetic basis; he ignores environmental influences – ie. Racism, low self esteem, fewer opportunities, etc.
- Scarr-Weinberg Adoption Studies
  - Compared black and white children adopted by white families
  - Bio parents – avg. IQ 100; Adopt. Parents – avg. IQ 115
  - Results: no difference between racial groups! Both averaged higher IQs than parents (around 100)

**powerful influence of environment on IQ

Test Biases

- Rely heavily on vocab – favors children who've been read to/encouraged to read
- Stereotype threat – anxiety in a situation where subject's performance has potential to confirm a negative stereotype
  - Just being asked to ID race produced lower scores
  - Black women who were told white women score higher scored lower than women who were told black women score higher
- Examiners' attitudes and race/gender matter in performance on test

Chapter 14: Social Psychology

Crash Course - Social Thinking

Crash Course - Social Influence

Crash Course - Prejudice & Discrimination

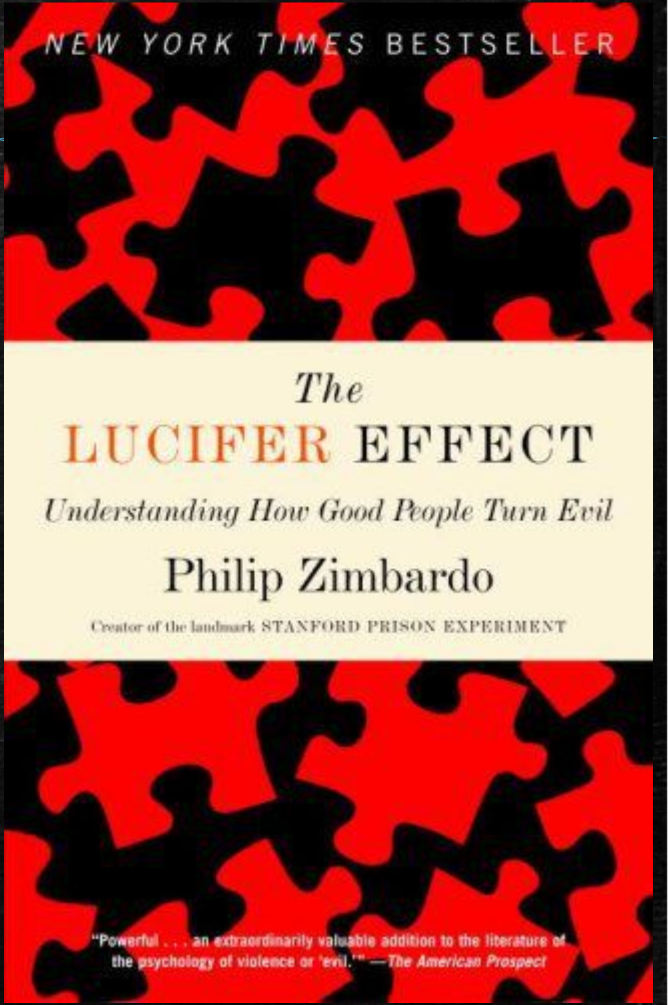
Quizlet

Deindividuation

- Have you ever acted out of character in a group? Why do groups of people commit heinous acts?
- In groups, we lose self-awareness and self-restraint
- We become less of an individual and more anonymous
- We feel less responsible for our own actions! (less like an individual)

The power of the situation!

- Dispositionism – attributes behavior to internal factors – genes, traits, character qualities
- **Situationism – emphasizes the environment (behavioral context) can have subtle or forceful effects on people's thoughts, feelings and behavior
  - System – institutions influence situations (ie. SPE!)



NEW YORK TIMES BESTSELLER

The LUCIFER EFFECT

Understanding How Good People Turn Evil

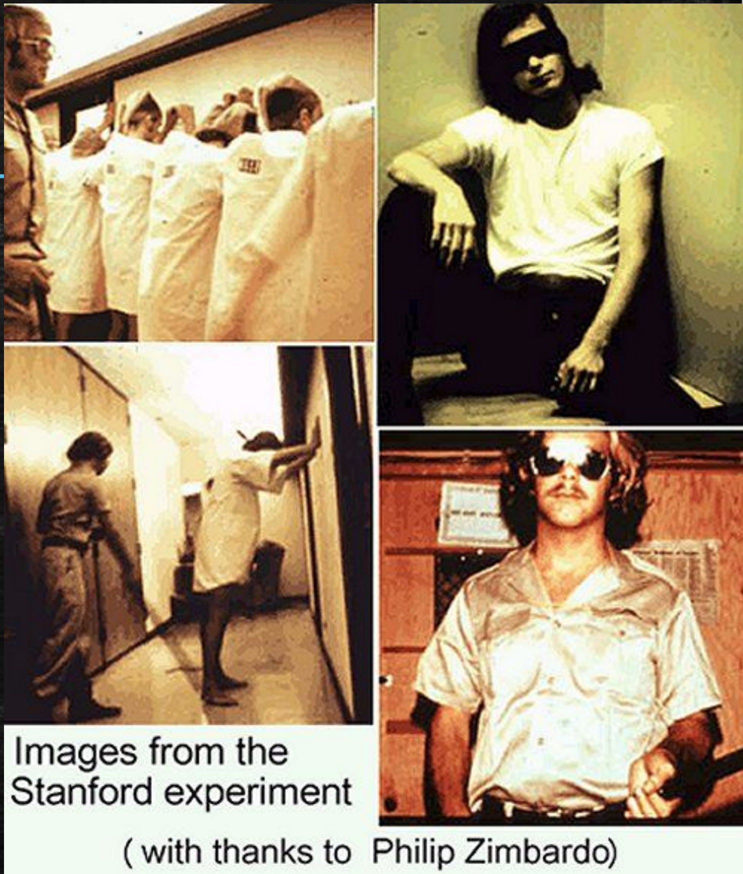
Philip Zimbardo

Creator of the landmark STANFORD PRISON EXPERIMENT

"Powerful . . . an extraordinarily valuable addition to the literature of the psychology of violence or 'evil.'" —The American Prospect

Social Standards of Behavior

- Social roles – socially defined patterns of behavior; tell us what we should do and how to do it!
  - Ex: prisoners/guards in SPE created status/power differences that influence behavior
- Scripts – "event schemas"; knowledge about sequence of events expected of a social role
  - Ex. schema of "guard" will drive the behavior of a person in that role
- Social norms – "unwritten rules" of society that dictate socially appropriate attitudes and behaviors

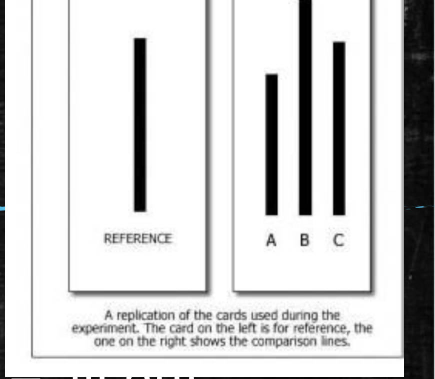

Images from the
Stanford experiment
(with thanks to Philip Zimbardo)

Zimbardo's Stanford Prison Experiment

Conformity

- *"yielding to group pressures"*
- in response to real (physical presence of others) or imagined (pressure of social norms / expectations) group pressure.
- "the chameleon effect" – our tendency to mimic other people – WHY???
- List 2 factors that you think would determine if someone conforms to a group.

The Asch Effect



A replication of the cards used during the experiment. The card on the left is for reference, the one on the right shows the comparison lines.

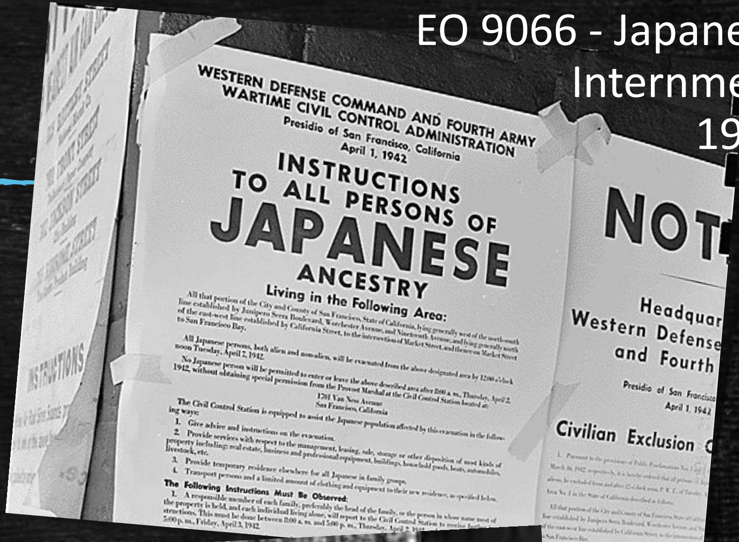
- Trials 1-3 – everyone agreed on correct answers
- Trial 4 – 1st person to respond gave obvious wrong answer – all but participants agreed with incorrect estimate, and the participant had to decide to conform or remain independent
  - Cognitive dissonance – the DISCOMFORT we feel when attitudes, behaviors, beliefs conflict; we alter our attitudes/beliefs to reduce the discomfort (**Festinger 1957)**
- 12/18 trials – unanimous group pressure imposed
- ¾ conformed to the false judgment of confederates one or more times

What group characteristics promote conformity??

- Size of the majority
- Presence of a partner who dissented
- Size of discrepancy between correct answer and majority’s position
- Also:
  - Is the task ambiguous or difficult?
  - Group members are perceived as knowledgeable/competent (informative social influence)
  - Response is given publicly, not privately (normative social influence)
  - Group majority is unanimous; when unanimity is broken conformity drops dramatically!!

Groupthink (Irving Janis)

- Groups can be pressured to conform – members conform to what each believes is group’s consensus
  - Leads group to make decisions that each member might normally consider unwise
  - 7 conditions that promote groupthink:
    - Isolation of group
    - High cohesiveness
    - Direct leadership
    - Lack of norms requiring methodical procedures
    - Homogeneity of members’ social background and ideology
    - High stress from external threats with low hope of better solution than that of leader



WESTERN DEFENSE COMMAND AND FOURTH ARMY
WARTIME CIVIL CONTROL ADMINISTRATION
Presidio of San Francisco, California
April 1, 1942

INSTRUCTIONS TO ALL PERSONS OF JAPANESE ANCESTRY

Living in the Following Area:

The Following Instructions Must Be Observed:

NOT

Headquar
Western Defense
and Fourth

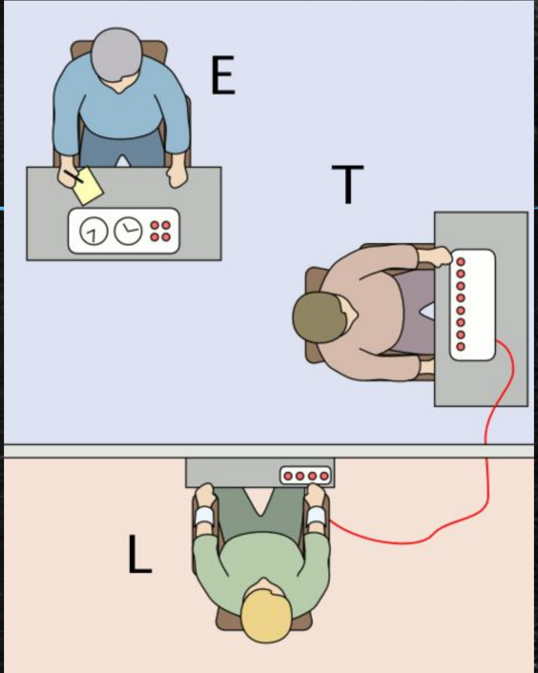
Presidio of San Francisco
April 1, 1942

Civilian Exclusion O

EO 9066 - Japanese Internment
1942

Bay of Pigs Invasion
1961

Why do we obey authority?



- Stanley Milgram (1962)
- HOW COULD THE HOLOCAUST HAPPEN?
- 2/3 deliver the 450 volt shock!!
- We're likely to be obedient when:
  - A peer models obedience
  - Authority will take responsibility (agency theory/agentic state)
  - When the victim is remote from the "teacher" and can't be seen/heard
  - When the "teacher" is under direct surveillance of the authority figure
  - When the authority figure has a higher relative status

Audio Clips

The Bystander Problem

Kitty Genovese

- Disposition or situation?
  - No difference in personality traits; best predictor of bystander intervention in Latane and Darley experiments was group size
- Diffusion of responsibility: dilution or weakening of each group member’s obligation to help/become personally involved
- Conformity: when we don’t know what to do we take cues from others

Compliance v. Obedience

- Compliance - changing one's behavior due to the request of another person.
  - going along with the group or changing a behavior to fit in with the group, while still disagreeing with the group.
- NOT obedience - does not require that the persuader be in a position of power or authority over others.

Marketing connection??

Persuasion

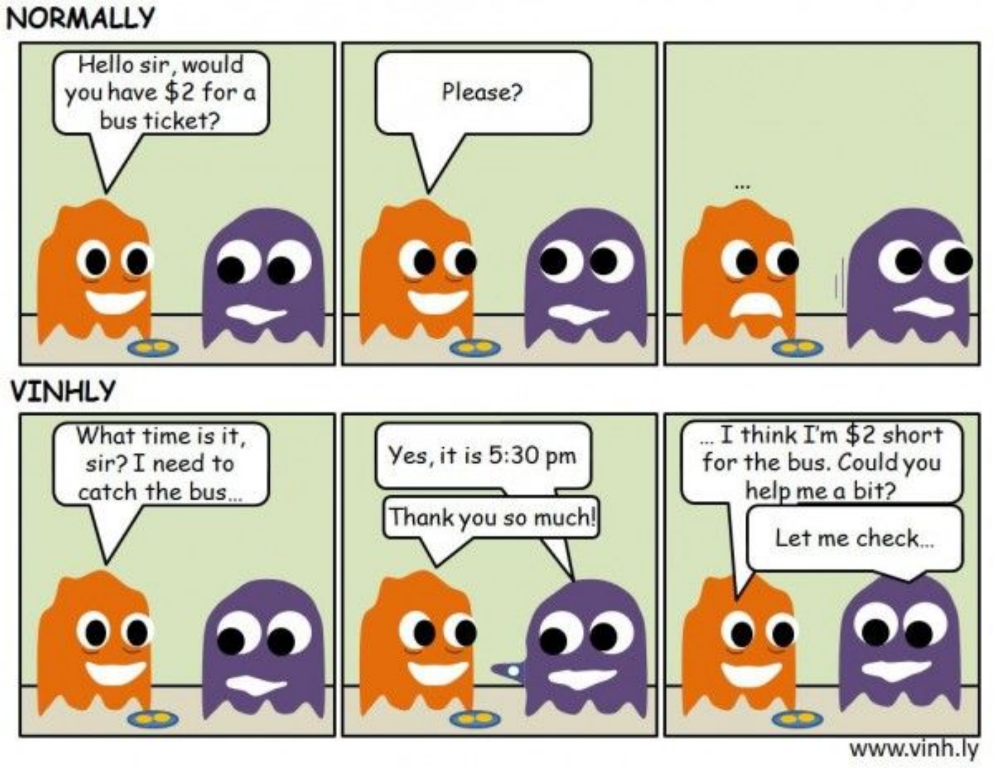
- Central Route – based on information/issues (ex. a candidate's stance on certain issues, a brand's scientifically proven effectiveness at treating a particular ailment)
- Peripheral Route – based on incidental cues (ex. the sound of a candidate's voice or their body language, a brand's packaging)

SELF
healthy kitchen
Created by SELF Magazine and Chef Calvin Harris
three cheese lasagna
with beef and marinara
Layers of seasoned lean beef, whole-grain pasta, hearty marinara, ricotta, mozzarella and parmesan
280 CALORIES
7g FAT
6g FIBER
15g PROTEIN
Beef Raised Without Antibiotics
Good Source of Protein from Beef
Good Source of Fiber from Pasta
NET WT 10 OZ (279g)
Keep Frozen
ALL NATURAL
NO ARTIFICIAL INGREDIENTS

Foot in the door phenomenon

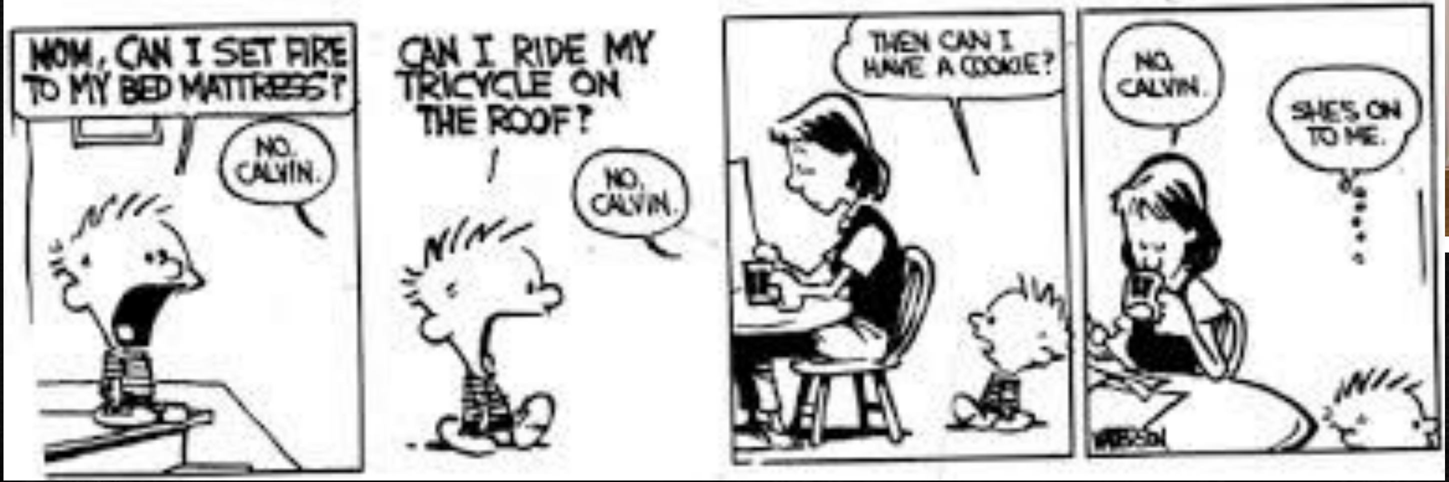
- persuasion strategy that can be used to gain compliance and get someone to agree to complete a task

Remember: **TNSTAAFL!!**


NORMALLY
Hello sir, would you have $2 for a bus ticket?
Please?
...
VINHLY
What time is it, sir? I need to catch the bus...
Yes, it is 5:30 pm
Thank you so much!
... I think I'm $2 short for the bus. Could you help me a bit?
Let me check...
www.vinh.ly

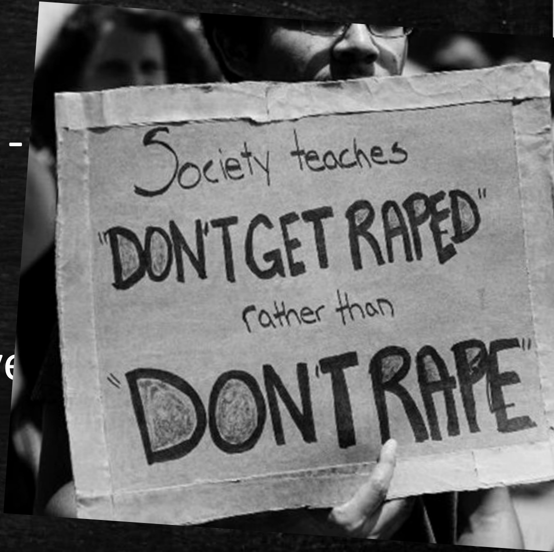
Door in the face phenomenon

- persuader starts by asking for a large commitment. When the other person refuses, they then make a smaller and more reasonable request.


MOM, CAN I SET FIRE TO MY BED MATTRESS?
NO, CALVIN.
CAN I RIDE MY TRICYCLE ON THE ROOF?
NO, CALVIN.
THEN CAN I HAVE A COOKIE?
NO, CALVIN.
SHE'S ON TO ME.
WATTERSON

Just World phenomenon

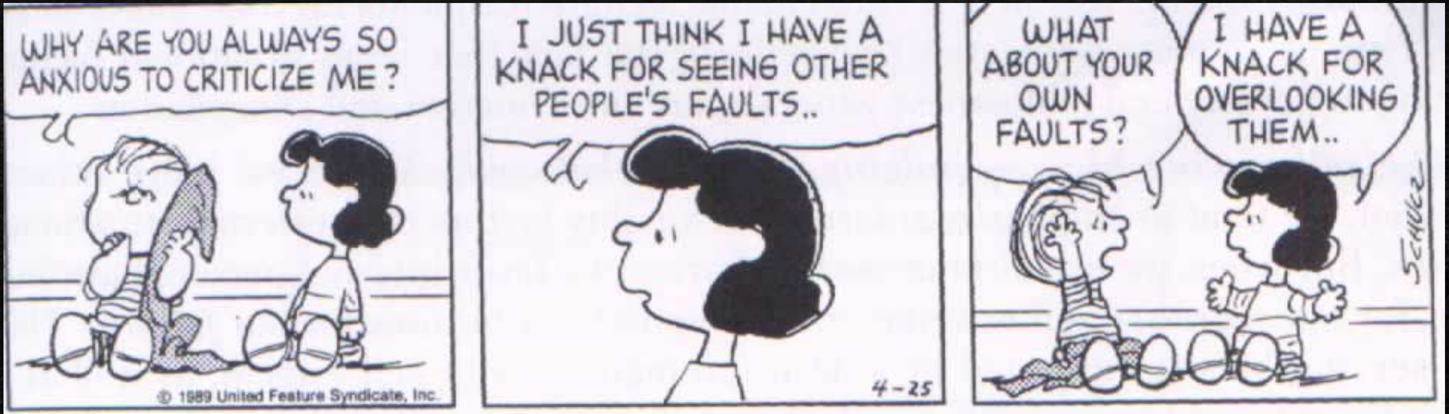
- people's tendency to believe that the world is just and that people get what they deserve
- People look for ways to explain or rationalize away injustice - often by blaming the victim.
- Why??
  - We believe in invulnerability (don't like to think of ourselve as violent crime victims!); blame victim's behavior so that we can continue feeling like it'll never happen to us
  - To reduce anxiety caused by injustices – by blaming the victim we can go on thinking the world is fair/just



- Tea Consent

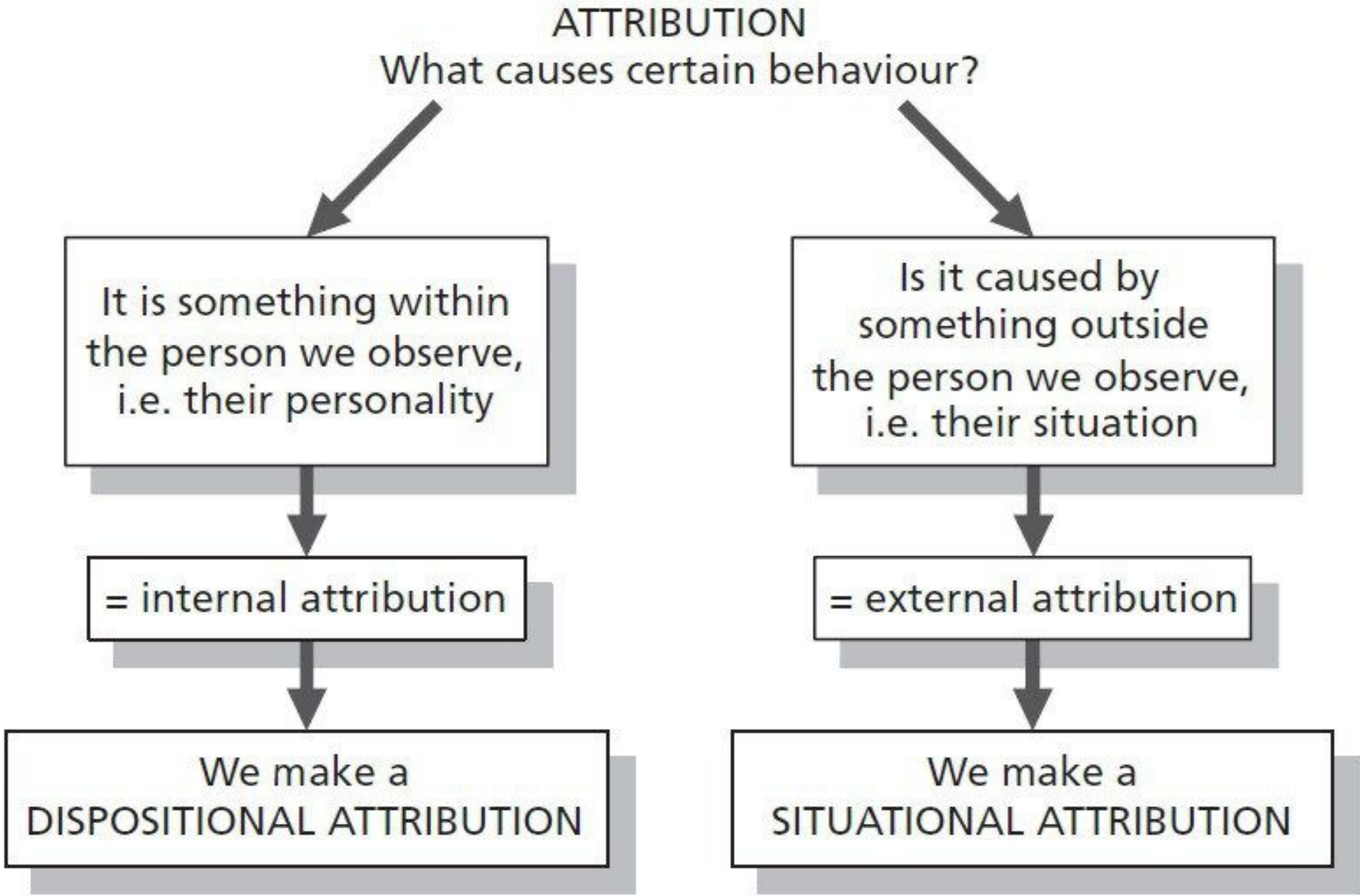
How do we view ourselves??

- Self-serving bias – when things go well we attribute it to internal factors; when things go poorly we attribute failures to external factors


WHY ARE YOU ALWAYS SO ANXIOUS TO CRITICIZE ME?
© 1989 United Feature Syndicate, Inc.
I JUST THINK I HAVE A KNACK FOR SEEING OTHER PEOPLE'S FAULTS..
4-25
WHAT ABOUT YOUR OWN FAULTS?
I HAVE A KNACK FOR OVERLOOKING THEM..
SCHULZ

PEANUTS; drawings by Charles Schulz; 1989 United Features Syndicate, Inc. Reprinted by permission of UFS, Inc.

Which are we more likely to make when judging others' behavior?



ATTRIBUTION
What causes certain behaviour?

It is something within the person we observe, i.e. their personality

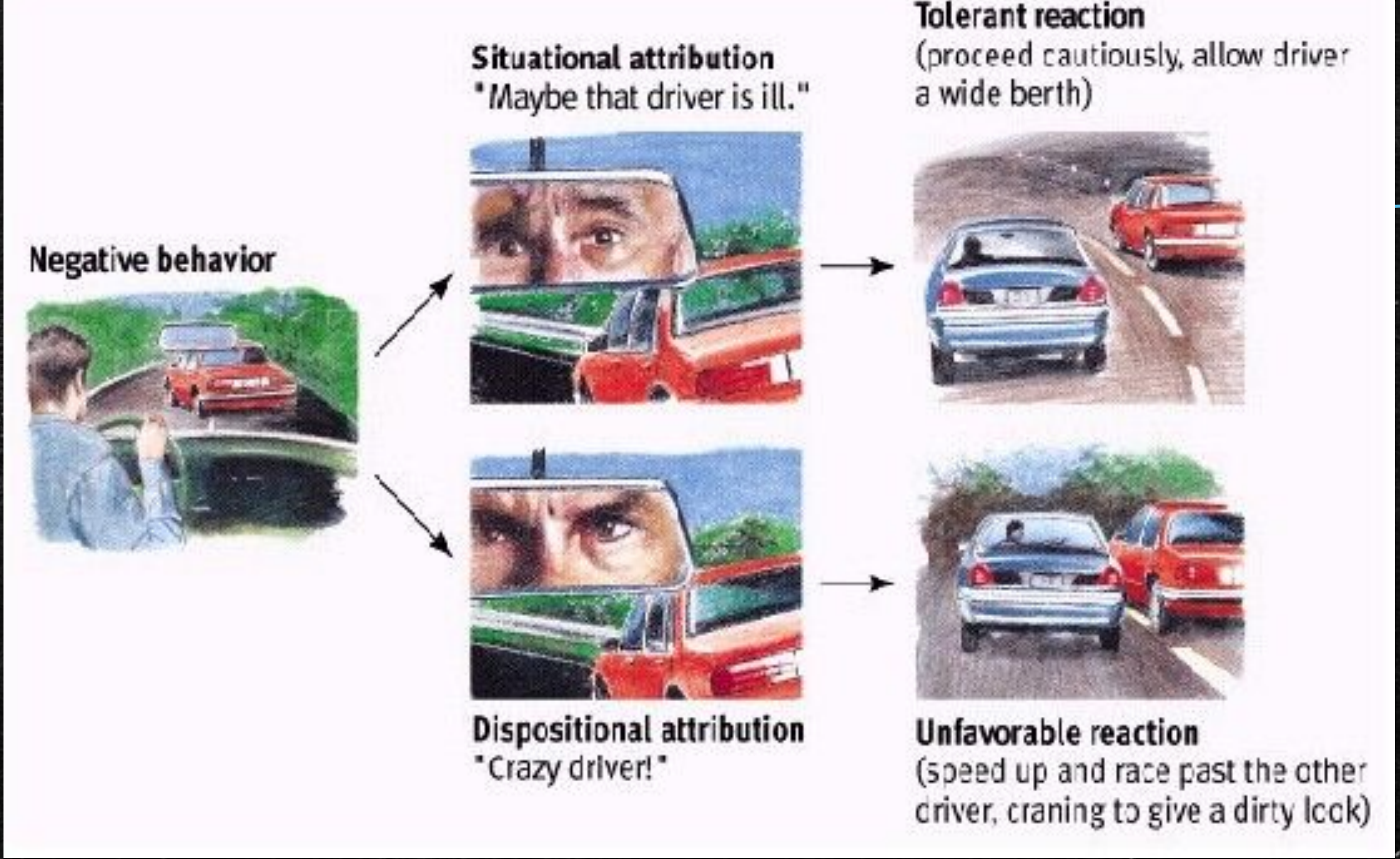
= internal attribution

We make a DISPOSITIONAL ATTRIBUTION

Is it caused by something outside the person we observe, i.e. their situation

= external attribution

We make a SITUATIONAL ATTRIBUTION



Negative behavior

Situational attribution
"Maybe that driver is ill."

Tolerant reaction
(proceed cautiously, allow driver a wide berth)

Dispositional attribution
"Crazy driver!"

Unfavorable reaction
(speed up and race past the other driver, craning to give a dirty look)

Fundamental Attribution Error – we ignore the influence of the situation on someone's behavior

Ultimate Attribution Error

In-group members attribute:

- negative out-group behavior to dispositional causes (more than they would for if their in-group behaved the same way)
- positive out-group behavior to an external cause
  - a fluke/exceptional case
  - Luck/special advantage
  - situational factors

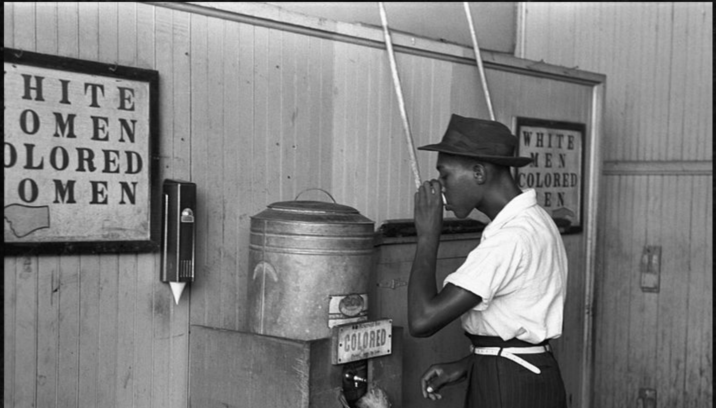
**attributional double standard - makes prejudice impossible to escape

Prejudice v. Discrimination

Hired
Not Hired
Age Discrimination?

- Prejudice – negative attitudes, beliefs and feelings towards an individual based solely on his/her membership in a particular group

- Discrimination – negative action (behavior) taken against an individual as a result of his or her group membership
  - Ie. Racial profiling, unequal access to facilities


HITE
OMEN
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WHITE
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COLORED
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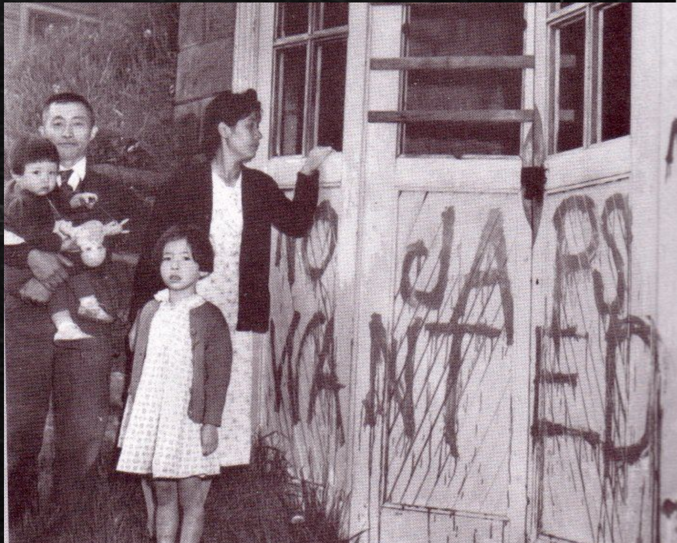
COLORED


NO JAPS WANTED

Causes of Prejudice

- Dissimilarity and social distance – when we perceive someone to be unlike the people in your in-group, we mentally place that person at a greater social distance than members of our own group; easier to treat members of out-group with contempt
- Economic competition
- Scapegoating – innocent group/person who receives blame when others feel threatened
- Conformity to social norms
- Other-race bias/own-race bias – "they all look, act the same, but WE are diverse"
- media stereotypes

The Cosby's helped break media stereotypes in the 1980s

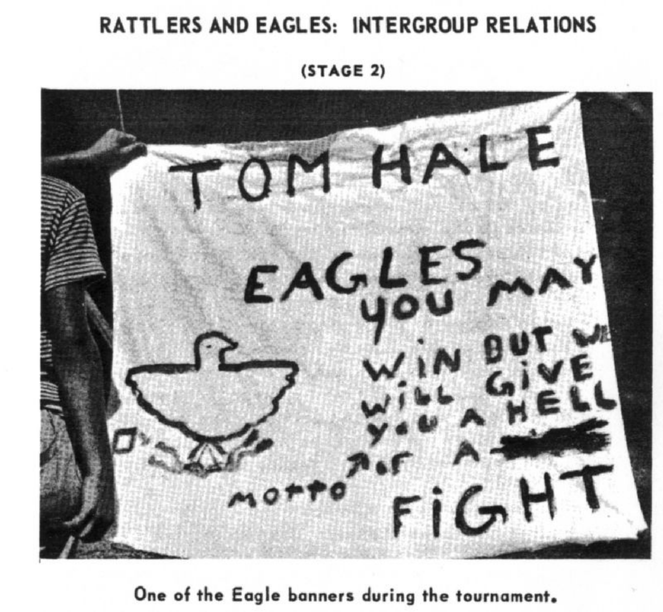
Clark’s Findings**

- 16 black children in **1950** in Clarendon County, **South Carolina**. Of these **63% said the white doll was the nice one**, the one they wanted to play with.
- Clark also **asked children to color a picture of themselves**. Most chose a shade of brown markedly lighter than themselves.
- **this showed that segregation had detrimental effects on the psychological development of African American children; the study was cited in the Brown case

Combating Prejudice

- Role Models
- Equal Status Contact – place individuals in situations where neither wields power over the other
- Can we legislate morality? Perhaps…
  - 1940s study – integrated housing project experienced sharper decrease in prejudicial attitudes than segregated one
  - Cognitive dissonance theory - desegregation laws required a change in behavior, do people change their attitudes to justify this new behavior?

Experiment in Conflict: The Robbers Cave (Muzafer Sherif, 1961)

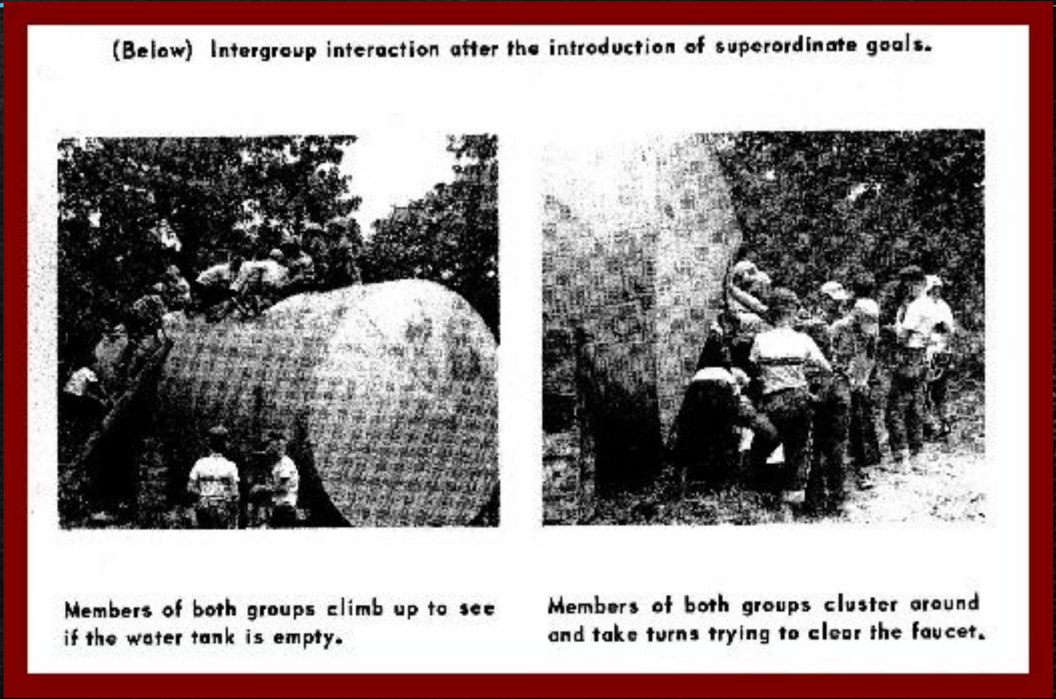

TOM HALE
EAGLES
YOU MAY
WIN BUT WE
WILL GIVE
YOU A HELL
OF A
FIGHT
MOTTO

RATTLERS AND EAGLES: INTERGROUP RELATIONS

(STAGE 2)

One of the Eagle banners during the tournament.

Experimenter-created Conflict between Eagles & Rattlers



(Below) Intergroup interaction after the introduction of superordinate goals.

Members of both groups climb up to see if the water tank is empty.

Members of both groups cluster around and take turns trying to clear the faucet.

Cooperation – mutual interdependence, superordinate goals

What are the roots of violence and terrorism?

Aggression/violence – antisocial behavior that is intended to cause harm to others

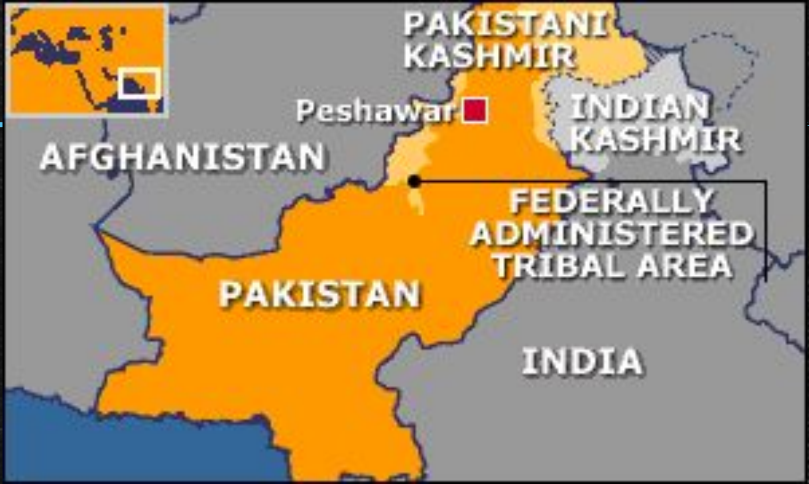
New York City, 2001

Boston, 2013

Oklahoma City, 1995

Roots of Terrorism?

VIDEO
Pakistan: Children of the Taliban
Recruiting and intimidating the next generation


PAKISTANI KASHMIR
Peshawar
INDIAN KASHMIR
AFGHANISTAN
FEDERALLY ADMINISTERED TRIBAL AREA
PAKISTAN
INDIA

Frustration-aggression hypothesis - aggression is the result of blocking, or frustrating, a person's efforts to attain a goal; aggression is a cathartic release of the build-up of frustration.

If ordinary people can be made to administer deadly shocks (Milgram), what is to be said for those who are living in poverty, lacking power and hope?

Reward Theory of attraction

- Attraction is a form of social learning – by looking at costs/benefits we understand why people are attracted to each other
- *We like those who give us maximum rewards with minimal costs*

4 Sources of Reward that Predict Interpersonal Attraction

- Principle of proximity – frequent sightings predict our close relationships
- Similarity principle – we like people who share our interests and values
- Self disclosure – exchanging personal info is rewarding; comes after trust has been established
- Physical attractiveness – good looks are an asset! Men value looks more than women do

Exceptions to Reward Theory

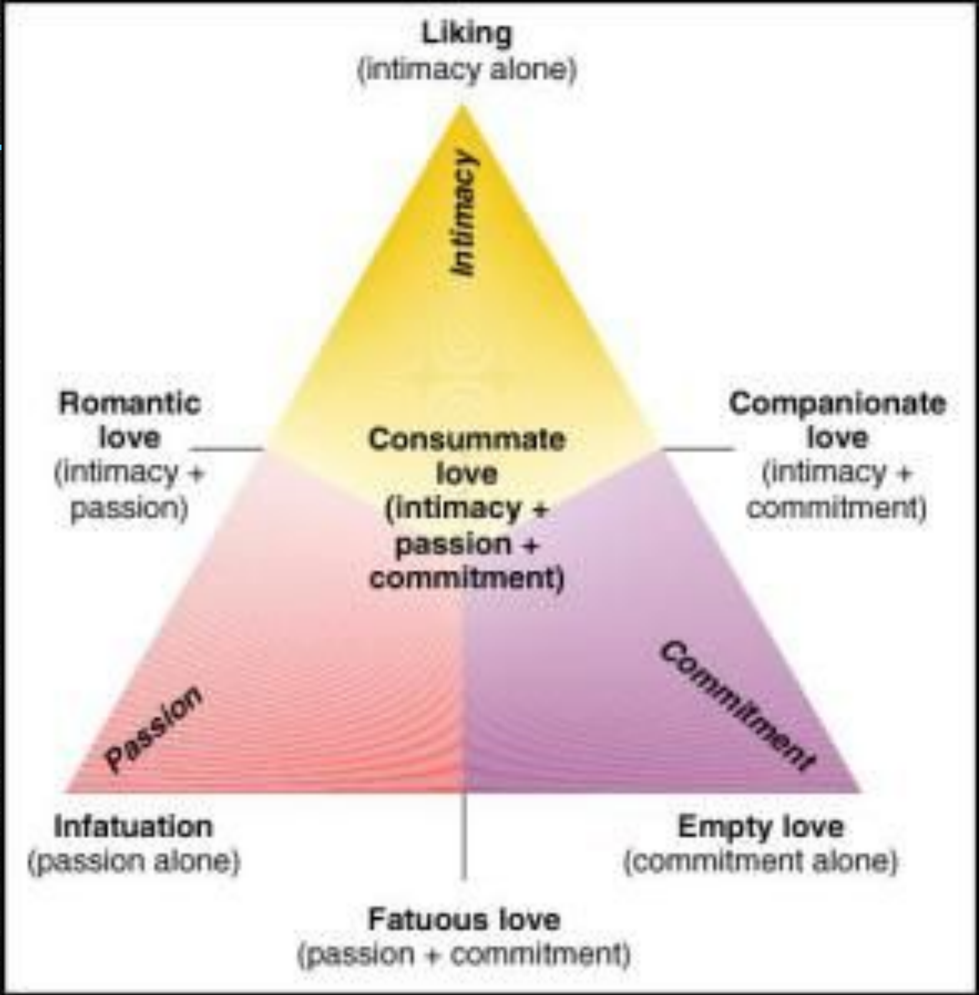
- Expectancy-value – we bargain for the best we can get – we weigh the value of another person against our expectations of success in a relationship
  - we go after most attractive people we think will probably like us in return (matching hypothesis - equally attractive)
- Low self esteem – tend to establish relationships with people who devalue their views; feel stronger commitment when partner thinks poorly of them
- Extremely competent people – we keep them away for fear we'll be quickly rejected; can be "normalized" by blunders!

Attraction & Self-Justification

- Cognitive dissonance – we are highly motivated to avoid the unpleasant feeling of dissonance (conflict of attitudes/ideas); we change our thinking to fit our behavior; predicts that people are attracted to those for whom they have agreed to suffer
- 2 ways to avoid dissonance
  - Change cognitions (thoughts) – RATIONALIZING
  - Change behaviors
- WHY??
  - We don’t want to look bad!
  - Maintain self esteem by explaining our behavior to ourselves

What's Love?

Sternberg's Triangular Model of Love


Liking
(intimacy alone)
Intimacy
Romantic love
(intimacy + passion)
Consummate love
(intimacy + passion + commitment)
Companionate love
(intimacy + commitment)
Passion
Commitment
Infatuation
(passion alone)
Empty love
(commitment alone)
Fatuous love
(passion + commitment)

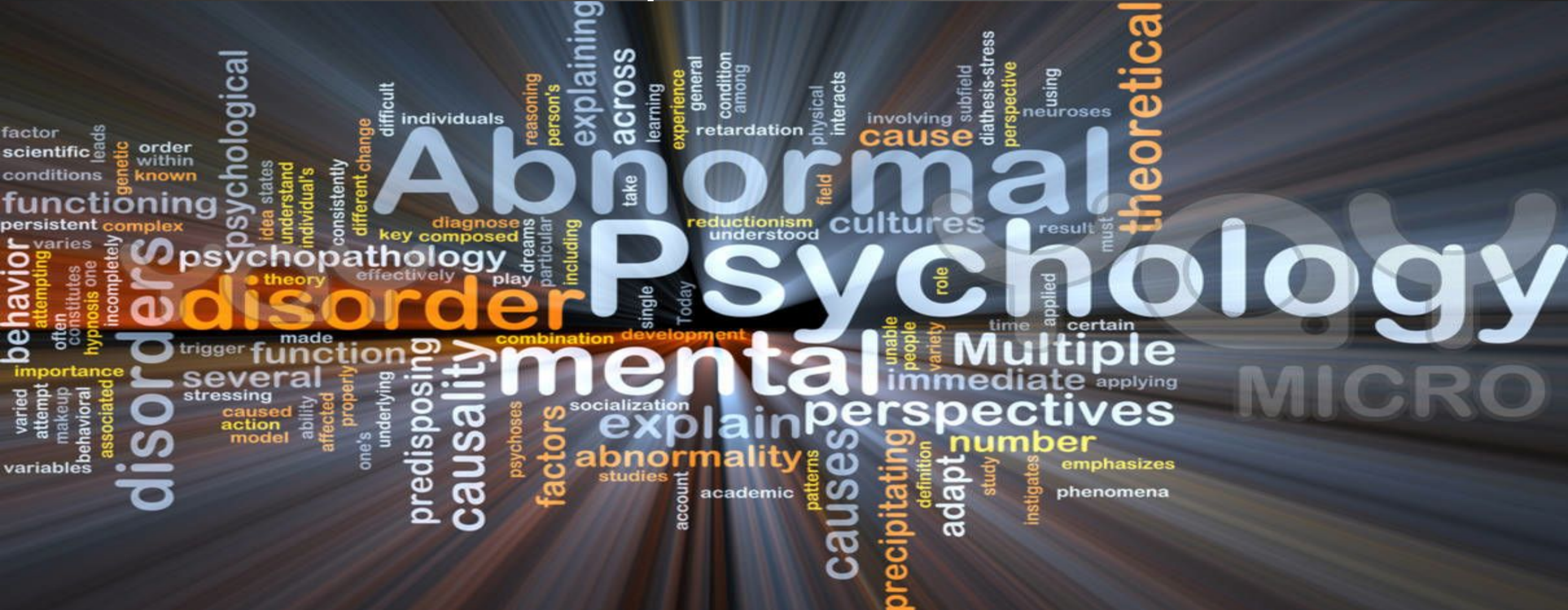
Group dynamics: how groups form and interact

Why do we join groups? Self esteem, social identity, expanding social networks

- Groups have: roles, norms and cohesiveness
- Social facilitation – when performance improves because an individual is in a group
- Social loafing – performance declines as a result of being in a group
- Deindividuation – loss of sense of personal responsibility (group assumes this responsibility); power of anonymity
- Group polarization – differences in opinion become more pronounced when people in group share similar (not identical) opinions

Psychological Disorders and Treatment

Chapters 12 & 13


Abnormal
Psychology
mental
disorder
disorders
psychopathology
perspectives
Multiple
explain
abnormality
causality
causes
precipitating
predisposing
factors
theoretical
psychological
functioning
behavior
cultures
cause
explaining
across
function
several
immediate
number
MICRO
factor
scientific
conditions
persistent
complex
order
within
known
leads
genetic
varies
attempting
often
constitutes
hypnosis one
incompletely
theory
effectively
play
diagnose
key composed
idea states
understand
individual's
consistently
different change
difficult
individuals
reasoning
person's
dreams
particular
including
take
learning
experience
general
condition
among
retardation
physical
interacts
involving
subfield
diathesis-stress
perspective
using
neuroses
reductionism
understood
field
result
must
role
applied
time
certain
applying
emphasizes
phenomena
single
Today
combination
development
made
trigger
importance
varied
attempt
makeup
behavioral
associated
variables
stressing
caused
action
model
ability
affected
properly
one's
underlying
psychoses
socialization
studies
account
academic
patterns
definition
adapt
study
instigates
unable
people
variety

3 Symptoms of Severe Psychopathology:

- Hallucinations – false sensory experience (ie. Persistent voices)
- Delusions – extreme disorders of thinking; persistent false beliefs
- Extreme affective (emotional changes) – depressed, anxious, manic, no emotional response

Medical Model

- Mental disorders are “diseases” that have objective causes and require specific treatments
  - Concerned with etiology (causes), diagnosis, treatment, prognosis

- Concerns with this model: Does the patient become a passive recipient of medication/advice?? Treating symptoms or causes??

- Places more responsibility on psychiatrists

Psychological Model

- Combination of behaviorism, cognitive psychology, social learning and biological psychology

- Social-Cognitive-Behavioral Approach:
  - Behavioral (outward)– abnormal behaviors can be learned – focuses on environment – rewards, punishments, social pressures
  - Cognitive (inward) – focus on how people perceive/think about themselves & relationships, locus of control

What are the indicators of abnormality?

- Distress –unusual/prolonged levels of unease or anxiety
- Maladaptiveness – acting in ways that make others fearful or interfere with their own well-being
- Irrationality – act/talking in ways that are irrational/incomprehensible to others

What are the indicators of abnormality?

- Unpredictability – erratic, inconsistent behavior from one situation to another; loss of control
- Unconventional/undesirable behavior – behaves in ways that are statistically rare and violate social norms, breaks laws

**Clinicians typically will label behavior as "abnormal" if 2 or more indicators are present.; Extremes and prevalence = greater confidence in diagnosis

DSM 5 (2013)

- Diagnostic & Statistical Manual of Mental Disorders (rooted in psychiatry)

- Takes into account and allows for treatment of the entire person
- 0-4 severity ratings for each diagnosis
  - 0 = no impairment
  - 4 = extreme impairment

DSM-5
DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS
FIFTH EDITION
AMERICAN PSYCHIATRIC ASSOCIATION
Manuel diagnostique et statistique des troubles mentaux
DSM-IV-TR

Click here for notes on disorders.

Thank you very much to fellow AP Psych teacher, Maria Vita, who shared this with me!

How do psychologists treat disorders?

- Insight therapies – focus on changing the person on the inside
  - Psychodynamic & Humanistic
- Cognitive therapies – rational thinking is key to therapeutic chance
  - Group therapies
- Behavior therapies – behavior modification
  - Classical conditioning – systematic desensitization (phobias), aversion therapy
  - Operant conditioning – contingency management, token economies, participant modeling
- Cognitive-Behavioral Therapy (CBT) – Rational Emotive Therapy (Albert Ellis)

Insight Therapies

- "talk therapies" – helps people understanding disordered thought, emotions & motives

Psychodynamic

- Psychodynamic – emphasis on *conscious* motivation; ego (self), life experiences (including post-childhood); social needs, interpersonal relationships

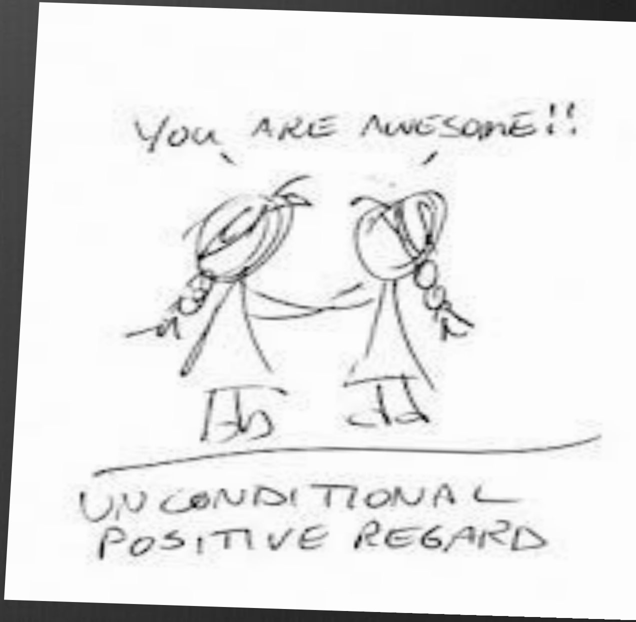
We weren't what I would call a "touchy feely" family
V Yalom
©2002, V. Yalom

“Indirect” Psychodynamic Methods

- Free association – what comes to mind when I say ________________________?
- Dream interpretation
- Transference – Pretend I am your mother…

Humanistic

- Recognition of free will, build self-esteem, realize potential; no emphasis on feelings, rather self-concept/feelings
  - Carl Rogers (Rogerian) – client centered therapy – nurturing environment
  - Reflection of feeling – "reflective listening" – to help clients understand emotions, therapists paraphrase client's words and try to capture emotional tone - psychological "mirror" so clients can see themselves
  - Assumes people have healthy motives (unlike psychoanalysis)
  - Atmosphere: genuine, empathetic, unconditional positive regard, feedback



Treatment of Psychological Disorders

Major Depressive Disorder

Cognitive Therapies

- Problems come from erroneous thinking
- Rational thinking is key to therapeutic change
- Reduce negative self-talk, learn realistic ways to explain experiences

Group Therapies

- Self-help support groups – ie. AA – trial and error based (not psychology)
- Couples/family therapy – recognize verbal/non-verbal communication styles; reinforce desired responses in other person; listening skills; client is entire family unit (each person as part of system)
  - Emphasis on SITUATIONAL not dispositional – how interactions happen, not individual motives/intentions

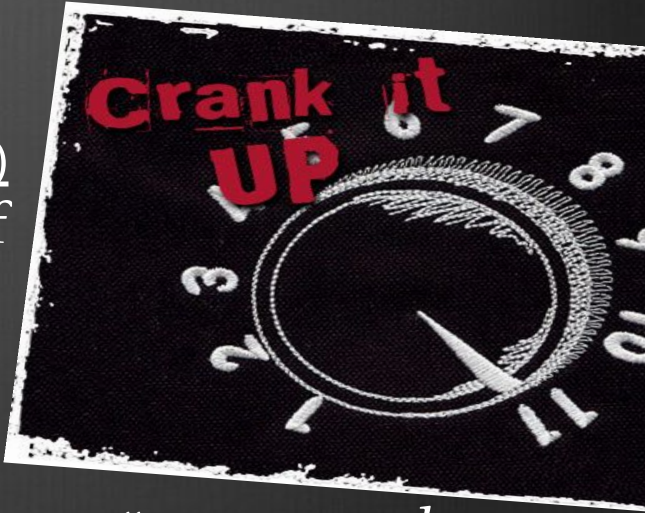
Cognitive-Behavioral Therapy (CBT) – Aaron Beck

- Cognitive – emphasis on thoughts/attitudes

- Behavioral – behavioral strategies – assumes irrational thoughts underlie maladaptive behaviors
  - ie. Smoker: "I'll go crazy if I don't smoke"; "one more cigarette won't hurt me"
  - CBT: develops *realistic strategies and new skills* to promote self-efficacy (person's belief in ability to complete tasks, reach goals)
    - Learning how to use distraction to get past craving

Antidepressants

- Tricyclic compounds – reduce reuptake of NT
- Selective serotonin reuptake inhibitors (SSRIs) –reduce serotonin deficit; prevent reuptake of serotonin, leaving excesses in synapse that are taken up by post-synaptic neuron and circulated throughout brain (ex. Prozac, Lexapro, Zoloft)
- Monoamine oxidase inhibitors (MAOIs) – reduce activity of enzyme MAO that breaks down norepinephrine; more NOREP available at synapse (assoc. with alertness and stress response)



"turn up the volume" of message in the brain by increasing NT

How SSRIs work

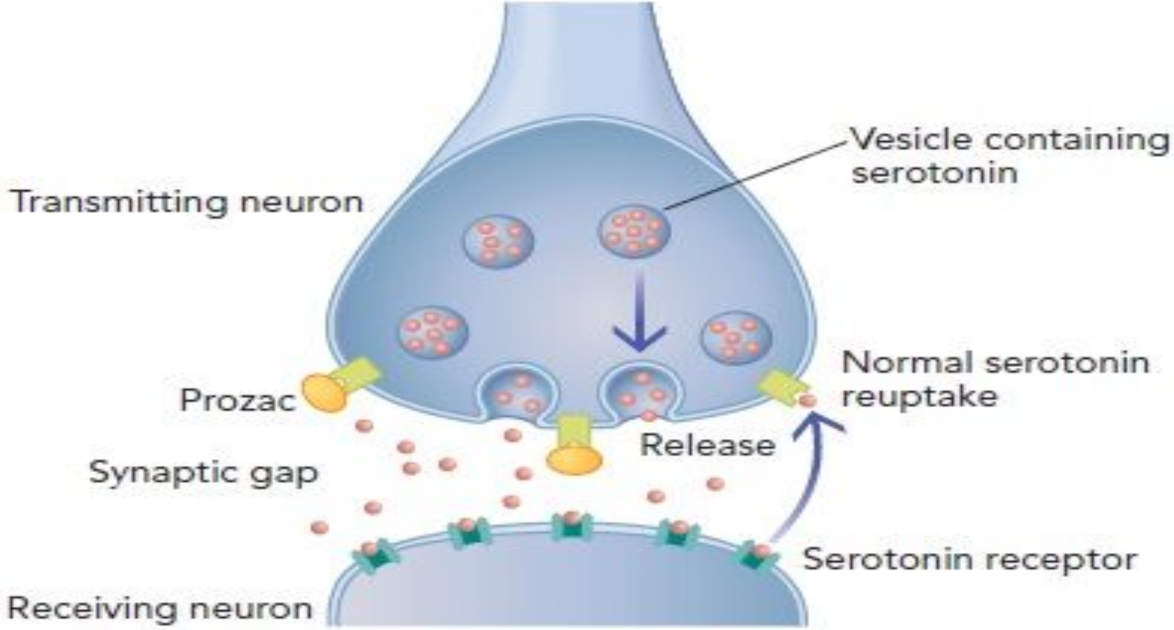
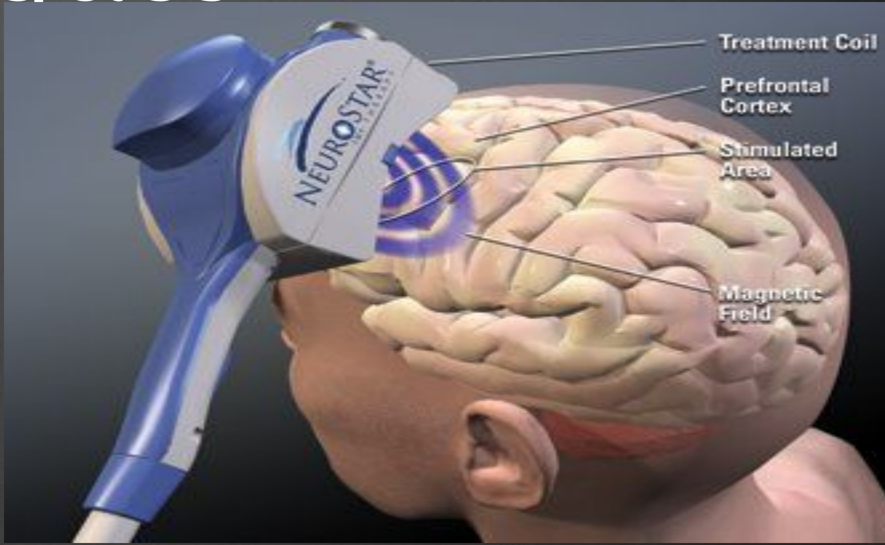

Vesicle containing serotonin
Transmitting neuron
Normal serotonin reuptake
Prozac
Release
Synaptic gap
Serotonin receptor
Receiving neuron

FIGURE 16.1 **How the Antidepressant Prozac Works** Secreted by a transmitting neuron, serotonin moves across the synaptic gap and binds to receptors in a receiving neuron. Excess serotonin in the synaptic gap is normally reabsorbed by the transmitting neuron. The antidepressant Prozac blocks this reuptake of serotonin by the transmitting neuron, however, leaving excess serotonin in the synaptic gap. The excess serotonin is transmitted to the receiving neuron and circulated through the brain. The result is a reduction of the serotonin deficit found in individuals with depression.

Brain Stimulation Techniques

- Electroconvulsive therapy (ECT) – pts who don't respond to depression meds; seizure is induced while patient is sedated; works faster than meds & psychotherapy
- Transcranial Magnetic Stimulation (TMS) – high powered magnetic stimulation to specialized parts of the brain; used for bipolar, schizophrenia, and depression; no seizure induction


NEUROSTAR
Treatment Coil
Prefrontal Cortex
Stimulated Area
Magnetic Field

Magnetic Stimulation

Bipolar Disorder

Mood Stabilizers

- Lithium carbonate – used to treat bipolar disorder (works for both depression and mania)
  - Toxic in large quantities – carefully dispensed, periodic blood analysis
- Divalproex sodium – developed to treat epilepsy; may be more effective than lithium w/ fewer side effects

Obsessive Compulsive Disorder

Exposure & Response Prevention

- Behavioral technique
- individual approaches the object of his or her fear/obsession without indulging in any compulsive ritual behaviors
  - Ex. exposure to germs/dirt - learn to associate this fear with no negative consequence
  - Ex. instead of walking into apartment and adding mail to a pile (hoarding), sorting placing junk mail in trash while being comfortable letting go

Anxiety Disorders

Rational-Emotive Behavior Therapy (Albert Ellis)

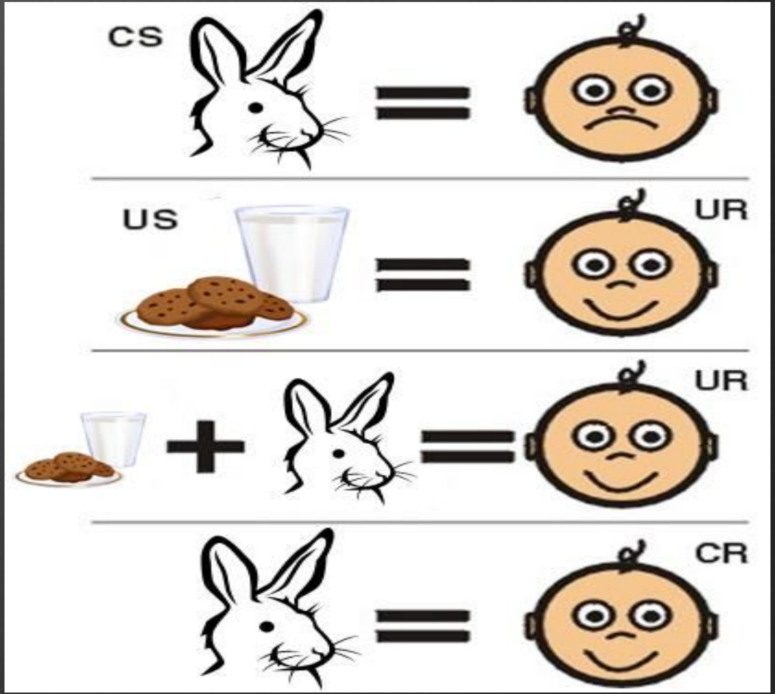
- Challenges irrational beliefs/behaviors (“shoulds” and “oughts”)

- Unrealistic values and unrealistic goals lead to unrealistic expectations
  - Ie. I SHOULD always be successful; people OUGHT to treat me fairly; all of my experiences SHOULD be pleasant

- REBT: recognize faulty assumptions, question rationality, replace them with valid ones

Classical Conditioning Therapies

- Mary Cover Jones (1924) – desensitized little Pete’s fear of rabbits through “direct conditioning”
- Also used w/ bed-wetting (moisture alarm to wake patient)

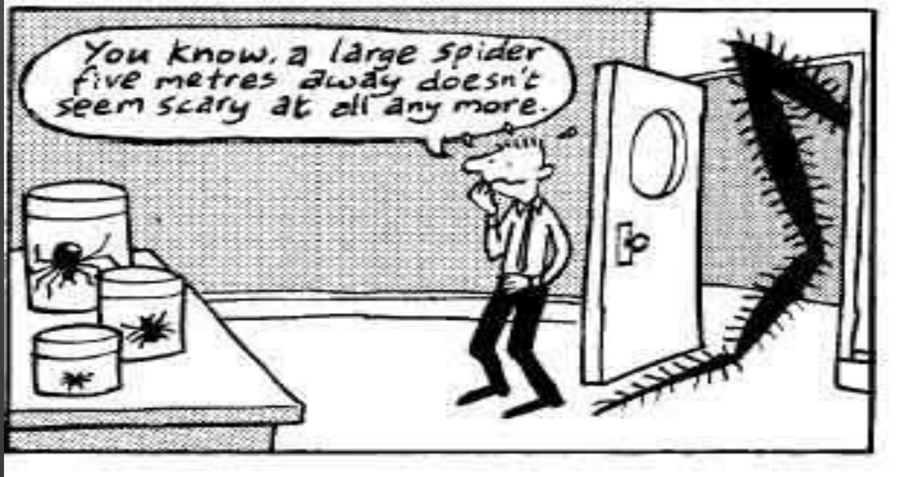


Systematic Desensitization

- Forms a “hierarchy of fear” – conditioned stimulus (spider) ranked from least fearful to most fearful

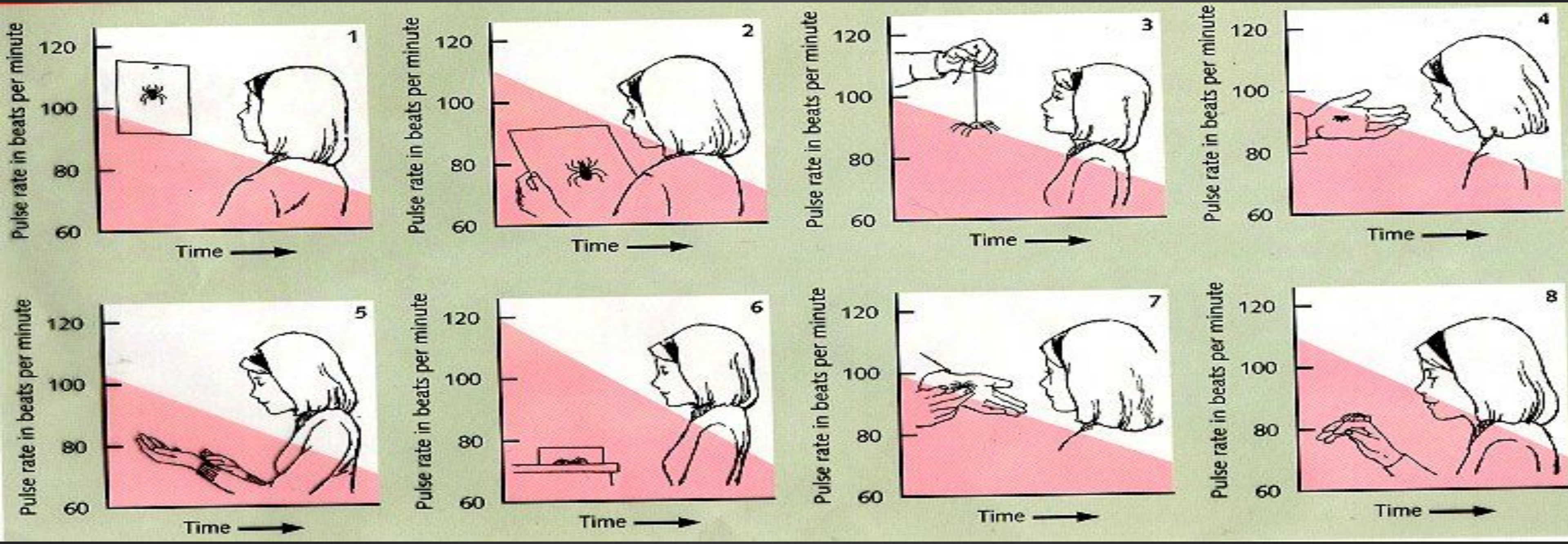
- Patients work their way up starting at the least unpleasant and practicing relaxation techniques; when comfortable (no more anxiety), move to next stage
  - In vitro (client imagines stimulus)
  - In vivo exposure therapy (client is actually exposed to stimulus)

the NS can’t be relaxed and agitated simultaneously


You know, a large spider five metres away doesn't seem scary at all any more.

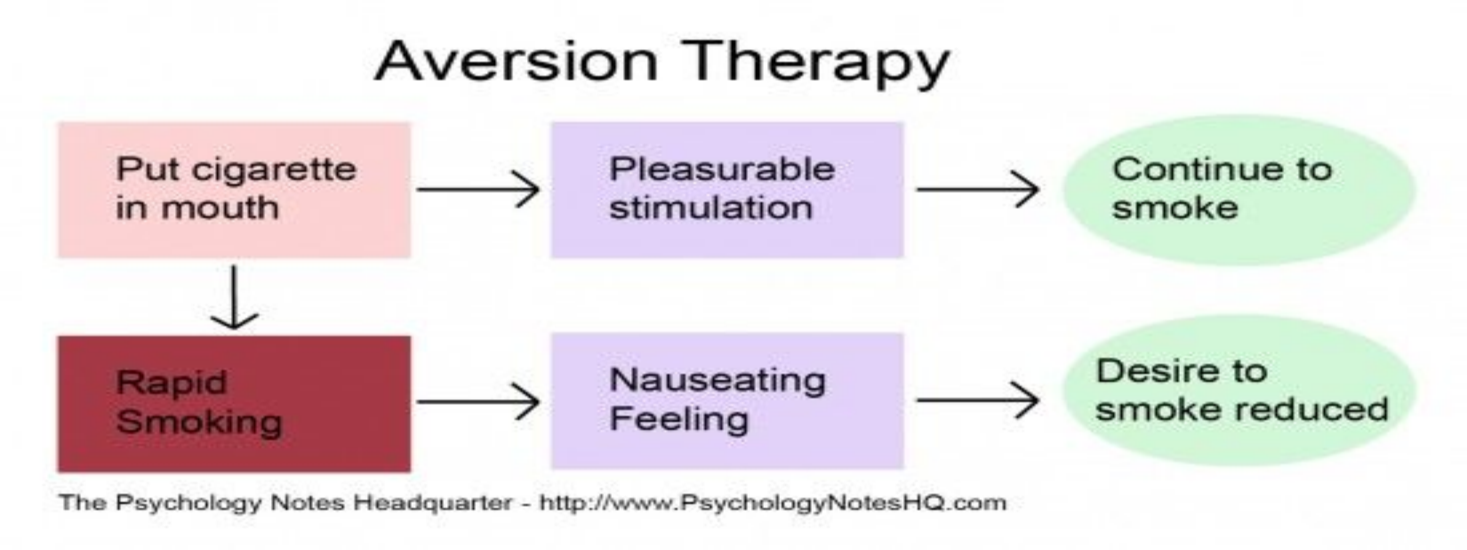
Used to treat phobias

Systematic Desensitization


1
2
3
4
5
6
7
8
120
100
80
60
Pulse rate in beats per minute
Time

Aversion Therapies

- Pairs tempting stimuli with unpleasant (aversive) stimulus


Aversion Therapy

Put cigarette in mouth
Pleasurable stimulation
Continue to smoke
Rapid Smoking
Nauseating Feeling
Desire to smoke reduced

The Psychology Notes Headquarter - http://www.PsychologyNotesHQ.com

Antianxiety Drugs

- Barbiturates – CNS depressants; relaxing effect; dangerous when taken w/ alcohol
- Benzodiazepines – increase inhibitory NT GABA – decrease parts of brain involved w/ anxiety, “minor tranquilizers” (ex. Valium, Xanax)
- Concerns:
  - Sedate user (can be addicting)
  - Not for everyday stress
  - Shouldn’t be taken for long periods, require weaning off
  - Depress CNS – shouldn’t complete tasks that require focus
  - Taken w/ alcohol/sleeping pills could result in death

Schizophrenia Spectrum Disorder

Diathesis Stress Model

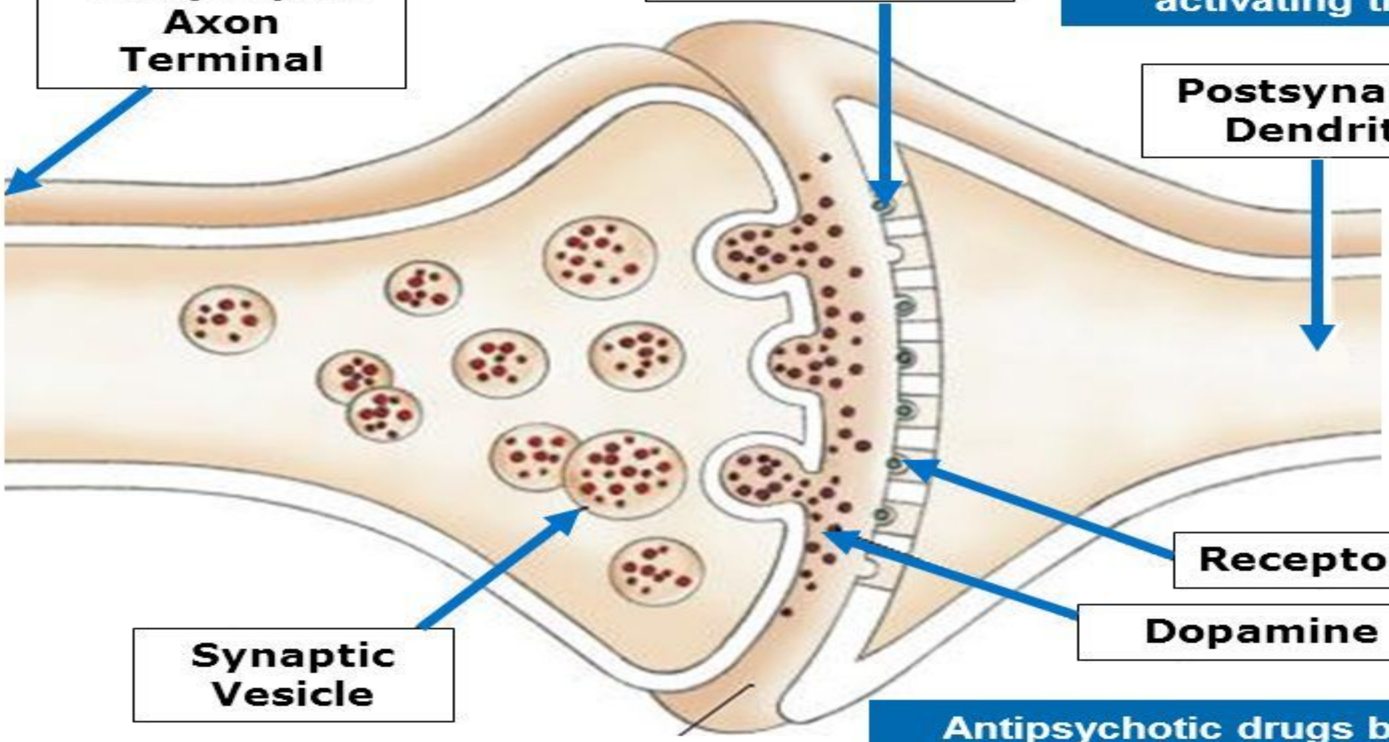
- we may be biologically vulnerable to certain disorders and that certain stressors may exploit those vulnerabilities, causing one to develop a certain disorder.

Antipsychotics

- Treat positive symptoms (psychosis)
    - Hallucinations, delusions
    - Reduce the amount of dopamine in synapse OR increase serotonin

**reduce brain activity to combat "positive" symptoms of schizophrenia (not negative – social distance, jumbled thoughts, flat affect, anhedonia (no pleasure) etc.

- Possible negative long term effects of neuroleptics – tardive dyskinesia – involuntary facial movements



Dopamine normally crosses the synapse between two neurons, activating the second cell.

Presynaptic Axon Terminal

Antipsychotic Drug

Postsynaptic Dendrite

Receptor Site

Dopamine

Synaptic Vesicle

Synaptic Gap

Antipsychotic drugs bind to the same receptor sites as dopamine thus blocking its action. For schizophrenics, a reduction in dopamine activity can quiet agitation and psychotic symptoms.

Slide prepared by Dr. Gordon Vessels 2005

Neurodevelopmental Disorders

- Autism Spectrum Disorder
- ADHD

Operant Conditioning Techniques

- Contingency management
  - "catch him being good" and reward with attention!
  - Withdraw attention when exhibiting undesirable behavior

** contingency for reward changes**

- Token economies – individuals receive tangible reinforcer
- Participant modeling – client observes/imitates model who shows desirable behavior (ie. social skills groups)

Stimulants

- Stimulate CNS – like caffeine, nicotine, amphetamines, cocaine
- Produce hyperactivity
- Used to treat narcolepsy, ADHD (w/ behavior therapy)
- Ritalin – may increase dopamine, glutamate (strengthens synaptic connections) and serotonin

Hospitalization & Alternatives

- 1950s – Maxwell Jones – therapeutic community – patients learn to cope w/ outside world while hospitalized

- Deinstitutionalization
  - Community health movement - Moving patients from mental hospitals to communities for treatment/support
  - Decreased funding to many mental health clinics = patients released to comm. that couldn’t provide care
  - Mental patients = 25% of hospital stays

‘On Being Sane in Insane Places’

- Rosenhan undertakes groundbreaking study: ***will sane people (‘pseudo-patients’) be recognized as sane by hospital staff in a psychiatric ward?***
- **Experiment**
  - 8 sane people admitted into 12 hospitals; 3 women, 5 men
  - Initially complained of ‘hearing voices’ of an ‘existential nature’:
  - Symptoms chosen because there were *zero* reports of ‘existential psychoses in the literature’
  - After being admitted, pseudo-patients behaved normally
  - Length of stay ranges from 7 to 52 days, average of 19 days

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